GENERAL INFORMATION

The Farm

QUARTERLY, AUTUMN, 1956, FIFTY CENTS

4G

DOES HERD TESTING PAY?

COW HABITS

e Revolution in Farming

where we've been: where we're going

How Wedge-*in* Action takes toughest bottom-plowing in stride-

See why Super-Sure-Grip does more work faster, lowers tire costs —

LONGER, RULER-STRAIGHT LUGS give you more traction area—and because they come *closer together at shoulders,* they take *"wedge-in"* bites that firm loose footing, deliver the most powerful go-ahead pull.

O-P-E-N C-E-N-T-E-R helps self-cleaning, longer, *ruler-straight* lugs bite deeper, pull better.

GREATER AIR-VOLUME for more flexibility and better ground contact. This also means an easier ride and greater load capacity.

LONG, EVEN WEAR — longer, *ruler-straight* lugs work evenly against soil, roll smoothly on road—and so wear slowly and evenly!

STRONGER BODY gives you added protection against bruise-breaks and the wear and tear of long, tough service. Goodyear, Farm Tire Dept., Akron 16, Ohio.

Super-Sure-Grip—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

ON FOOTING LIKE THIS, even the biggest lugs need something *extra* to handle twin plowshares—a foot-and-a-half in heavy sod.

Super-Sure-Grip lugs *have* that extra something! It's "ANGLE-ENGINEERING" — Goodyear's exclusive way of making longer lugs ruler-straight and placing them so they come *closer together at the tire's shoulders!*

That's how Goodyear's famous *"wedge-in"* action is developed. That's how Super-Sure-Grip lugs apply a vise-like squeeze to practically any footing—hold it—and deliver the most powerful go-ahead *pull.* No wonder that survey after survey shows—

MORE FARMERS PREFER GOODYEAR TRACTOR TIRES THAN ALL OTHER MAKES *PUT TOGETHER!*

Make your Goodyear dealer's sign your good luck sign. Enter the Goodyear $150,000 Sweepstakes at your Goodyear dealer's now!

WIN FREE VACATION!

Goodyear's 4th Annual National Soil Conservation Awards Program Started May First — *and there's still time to enter!* For details, contact your local Soil Conservation District Office—or nearest Goodyear dealer!

GOODYEAR

Super-Sure-Grip Tractor Tires

SEP 12 56

These trucks can do about everything on a farm!

Even the side of a barn isn't big enough to show pictures of all the farm jobs INTERNATIONAL Trucks can perform. That would take a full-length movie!

There's not even room here to show all the different models. Fact is, INTERNATIONAL offers you the country's most complete line of farm trucks. For example, a choice of *twelve* different pickups!

And whichever model you choose, your INTERNATIONAL will be the easiest handling, the most comfortable, the most responsive truck you ever owned. *Drive* one and see!

How about costs? Your INTERNATIONAL is built to *last* (as a farmer, you know that's the only way Harvester builds its products). And that means you save the *big* money on operation and maintenance costs, year after year. Your nearby INTERNATIONAL Dealer or Branch will be happy to show you the latest models. Drop in soon.

P.S. Bring the Mrs. along—she'll love the choice of twenty-four sparkling new color combinations.

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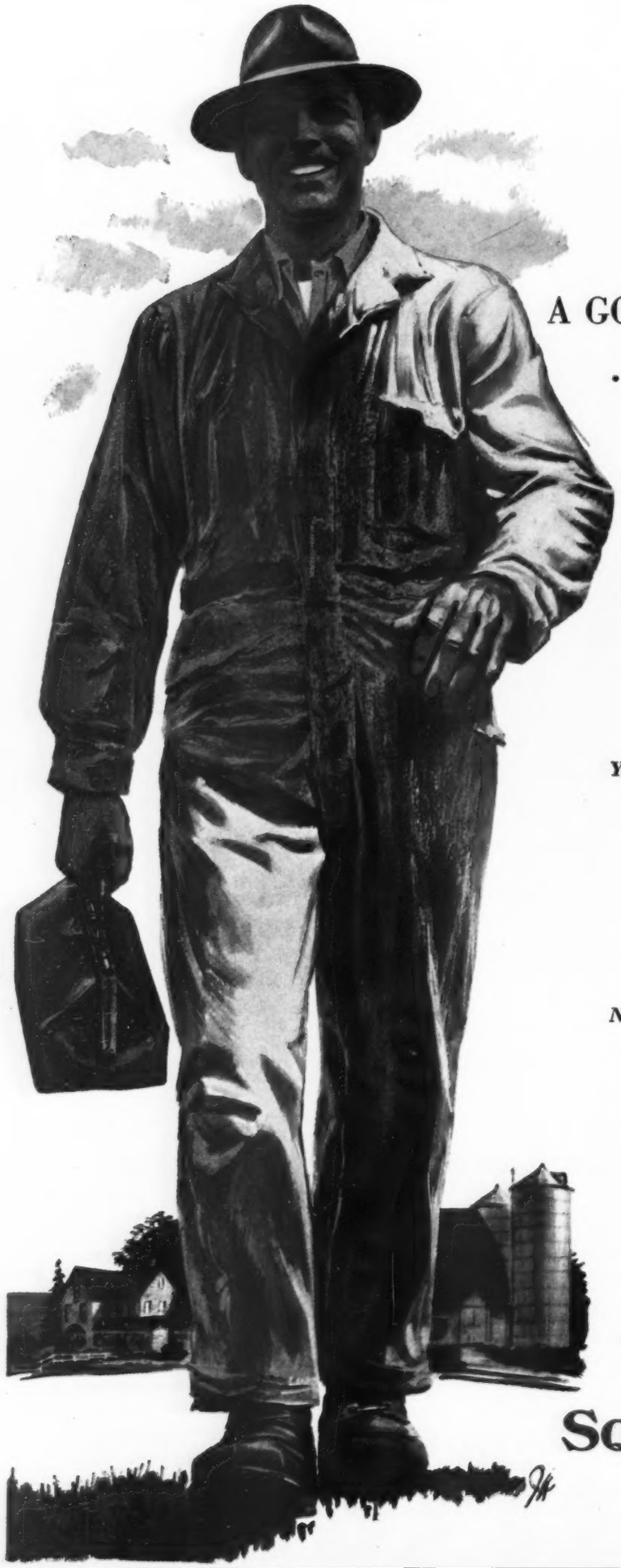
All-Truck Built to save you the BIG money!

Motor Trucks • Crawler Tractors • Construction Equipment • McCormick® Farm Equipment and Farmall® Tractors



A GOOD MAN TO KNOW BETTER

...your Veterinarian, schooled in Health Engineering

If you own livestock, it's good business to hire a man thoroughly skilled in the practice of modern Health Engineering. Breeding, feeding and growing healthy animals to meet today's increasing demands for profitable production, require expert advice.

Health Engineering can help you produce bigger profits. A successful program of livestock health requires a trained man—one who knows nutrition, one who's a specialist in the techniques of disease prevention, diagnosis and surgery. You know him as your veterinarian.

Your part in making Health Engineering profitable

Livestockmen who make money keep accurate records. Your animals' heat periods, date of breeding, dates young are dropped, dates and description of disease and injuries—all should be carefully recorded. You should also keep production records—especially of milk production—for these help your veterinarian use his knowledge of Health Engineering to *your* best advantage, help him save precious time, save *you* countless dollars.

New drugs—their importance to Health Engineering

Research is constantly discovering new and better drugs which your Veterinarian employs to prevent and combat livestock diseases. When he administers a Squibb drug, you can have faith in its purity, effectiveness and safety. Nearly a hundred years of experience and pride are behind the words "SQUIBB —A NAME YOU CAN TRUST."

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Veterinary Department
745 Fifth Avenue, New York 22, N. Y.

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Farm Quarterly, Vol. Eleven, No. Three. Editorial, Circulation and Executive Offices, 22 East 12th Street, Cincinnati, Ohio. Published quarterly by F. & W. Publishing Corp. Subscription price 50c a copy; $2.00 for one year; $3.50 for two years; $5.00 for three years. Add $1.00 per year extra for rates outside the United States and Canada. Entered as second-class matter at the Post Office, Cincinnati, Ohio, under the Act of March 3, 1879. (Title Reg. U.S. Pat. Off.)

Engineered with new features that farmers have asked for, new one-row pull-type NEW IDEA corn picker

This is the picker that farmers built

New one-row pull-type corn picker from New Idea . . . with greater convenience and safety

We've talked with a lot of farmers about what they want most in a new one-row picker. That's why we say this new one-row is the picker that farmers built.

Four new convenience features. Keeping a picker greased and humming is a constant and time-consuming job. So the new one-row has 30% fewer grease fittings. And it takes less effort to raise and lower the snapping unit because of a new, spring loaded lifting mechanism, within easy reach from the tractor seat.

Then, there's an easy-to-use "snap-on" universal joint. And, for more even distribution of corn in the wagon, there's a new ear deflector at the top of the wagon elevator, adjustable easily from the tractor seat. Those are four of the things that farmers have asked for and get in the new NEW IDEA picker.

Two new safety features. There's a positive, conveniently located snapping roll adjustment by means of a lever and quadrant. This gives you easier, safer unplugging of snapping rolls. And the PTO shaft is now permanently shielded for greater safety.

17% less corn left in the field. You can't afford *not* to own a NEW IDEA corn picker. Why? Because the average corn loss of 25 NEW IDEA pickers in 1955 official contests was actually 17% less than the average corn loss of 73 competitive machines. That's clean field picking that can't be beat.

Clean corn. One of the reasons why NEW IDEA owners won more state and national championships in 1955 than owners of any other make is the unique design of the husking rolls. They deliver a maximum amount of clean corn to the wagon elevator.

Write for new folder on the new one-row NEW IDEA pull-type picker today. Or get a copy at your dealer's.

Best idea yet . . . get a New Idea

NEW IDEA FARM EQUIPMENT CO., DIVISION AVCO DISTRIBUTING CORP.

Dept. 1985, Coldwater, Ohio

Please send me your folder on the new one-row picker.

Name_____

Address_____

Town_____ State_____

Also send folders on Mounted picker ☐ Two-row pull-type picker ☐
Snapper ☐ Elevator ☐ Wagon ☐ Wagon box ☐ Stalk Shredder ☐

WHEN YOUR STRIP CUP SAYS **MASTITIS...**

FOLLOW UP IMMEDIATELY WITH "4-BARRELLED"

TARGOT®

MASTITIS OINTMENT

Check your strip cup at *every* milking. At the first sign of abnormal milk, infuse the infected quarter with TARGOT and get that cow back in the milking string without delay... with the least loss of milk... and with the minimum of damage to delicate udder tissue!

TARGOT contains not one but FOUR proved antibiotics for sure, fast action against all the common mastitis-causing bacteria—AUREOMYCIN® Chlortetracycline, Penicillin, Neomycin and Dihydrostreptomycin.

The lighter-than-milk base floats the four antibiotics into *faster* contact with *all* the affected tissue. TARGOT does not mix with the milk... remains at work longer... is not milked out and wasted.

Available from your veterinarian, druggist or feed dealer.

Stronger... but gentle ***TARGOT*** *combines 4 powerful antibiotics*

Always ask for TARGOT by name!

Lederle — LEDERLE LABORATORIES DIVISION | *AMERICAN CYANAMID COMPANY* | PEARL RIVER, NEW YORK

Fred Coulter, Jr., Conrad, Iowa, Farmer Reports:

"An electric baler has cut our baling costs almost 50%"

That's one way the new mobile power generator made by General Electric for International Harvester sure helps dollar-conscious farmers. "After baling 60,000 bales, we prefer Electrall* baling to engine or PTO drive.

"WE SAVE MONEY . . . almost 50% on fuel without an engine on the baler. Also, the totally-enclosed electric baler motor needs little or no maintenance. That saves real money. We bale more per day because we don't have fueling or service stops." The powerful electric motor, nearly 45% smaller than a comparable gas engine, permits better visibility all the way back to the hay rack.

"BALING IS EASIER on us with no baler engine noise or gas fumes around. Electrall beats PTO baling, too. You've got fewer parts to maintain and the flexible electric cable permits shorter turns.

"STANDBY POWER will run our pump, freezer and furnace in emergencies.

"PORTABLE POWER is important, too. We've already welded one field breakdown." So reports Fred Coulter, Jr. of Conrad, Iowa.

If you're buying a new tractor or own a large-size I. H. tractor, see your I. H. dealer. Ask him for an on-the-farm demonstration.

FOR MORE INFORMATION on electrified farming, write for free booklet GEA-6400A, to P.O. Box 1064, Medium Induction Motor Department, General Electric Company, Schenectady 5, N. Y.

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GENERAL ELECTRIC

See Them . . . Drive Them . . .

JOHN DEERE TRACTORS for 1957

New Capacity for Faster, Better Work ...

New Time-Saving Convenience Features...

Traditional JOHN DEERE VALUE

6 Power Sizes 30 Basic Models

Sure, they're good looking! Clean, bold lines. Handsome new color styling. But—far more important:

In this new tractor family you will find *the* tractor to bring down operating costs . . . cover more acres, boost work output each day . . . put new comfort and convenience into every job. All this—with traditional John Deere value and economy.

Complete power range, wide choice of types: 320 Series, 1-2 plow power . . . 420 Series: 2-3 plow wheel types; 3-4 plow Crawler . . . 520 Series, 3-plow . . . 620 Series, 4-plow . . . 720 Series, 5-plow . . . 820 Diesel, 5-6 plow.

In this family of dependable, rugged tractors you'll find new, more powerful engines for gasoline, LP-Gas, Diesel or tractor fuel; widely adaptable hydraulic systems for fast, easy control of all types of equipment; versatile 3-point hitch for new "pick up and go" speed and ease; Load-and-Depth Control for uniform-speed tillage; "Live" PTO—and a host of other features for comfort and convenience. Advanced power steering and power-adjusted rear wheels available on many models.

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Send literature on these tractors:

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QUALITY FARM EQUIPMENT SINCE 1837

Every Tool User Will Want One!

Revolutionary in design, the patented "Rotahead" socket handle takes the place of a ½" drive reversible ratchet and conventional hinge handle. Just press the head downward and the handle rotates freely. Release pressure and the head engages the drive plug. The strong free-wheeling mechanism permits a new bite every 12 degrees. The compact head gets into tight places. And the 16" length provides high leverage. Buy this sensational time saver at your PROTO dealer's. Send 10¢ for catalog of entire line to

PROTO TOOLS
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ALSO NEW!

Patented Spark Plug Holding Sockets with 13/16" Openings. Cutaway view. Rubber insert holds plug securely, speeds work, prevents burning of fingers. No. 5026HP—⅜" drive. No. 5326HP—½" drive.

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Double Hex Sockets. For elastic stop nuts. Nos. 4708T-4714T—(¼"-7/16" openings)—¼" drive. Nos. 5210-5228—(5/16"-⅜" openings)—⅜" drive.

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PROTO TOOLS
PROTO means PROfessional TOols

The Farm QUARTERLY

Autumn, 1956, Volume 11, No. 3

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THE FARM QUARTERLY
22 East Twelfth Street, Cincinnati 10, Ohio

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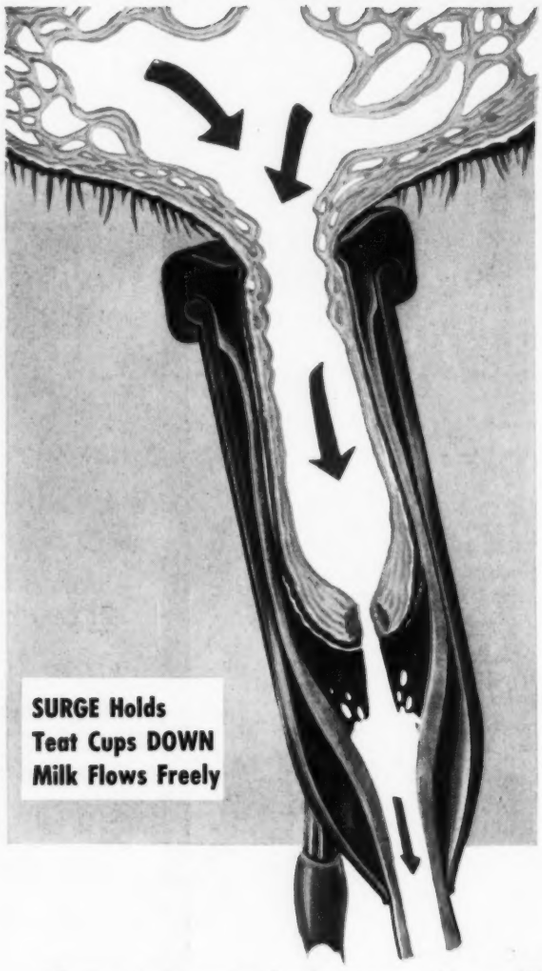
THINK *Before You Spend!*



When you decide to install a Pipe Line Milker it will pay you well to remember these words:

"The very first duty of any milking machine is to do a really safe, satisfactory and complete job of milking cows *without* a lot of help from your hands."

Many thousands of dairy farmers in many countries have switched to genuine Surge TUG & PULL milking because it automatically holds the teat cups down where they belong.

Pipe Line Milking is still cow milking. The old problem of getting the cows milked quickly and safely has not changed in any way. Creeping teat cups that pinch off milk flow are still creeping teat cups, even though they are on an installation costing several thousand dollars.

Surge teat cups don't creep. Any milking machine that bears the Surge Nameplate does milk with genuine Surge TUG & PULL.

Think before you spend! Be sure that you are paying all that money for a machine that really will milk cows.

Think before you spend! The greater the investment the more important it becomes to make sure of prompt and adequate service.

Is the man who wants to sell you a Pipe Line the same man that will install it and take care of it for you? Does he know how to take care of it?

Many thousands of dairy farmers think well of Organized Surge Service . . . and organized service is an important part of any pipe line.

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BABSON BROS. CO.

2843 West 19th Street, Chicago 23, Illinois

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You're Always Glad in the Fall you planted

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Produces Top Yields...Picks Clean

In the Fall — when you harvest your corn — is when PIONEER really "pays off". PIONEER'S Bigger, More Profitable Yields—combined with Clean, Efficient Picking—make it first choice with hundreds of thousands of corn growers. For TOP YIELDS and PROFITS—make PIONEER your choice next year. See your local PIONEER Salesman TODAY.

PIONEER Hybrid Seed Corn is produced by the following companies:

Garst & Thomas Hybrid Corn Co.	Pioneer Hi-Bred Corn Co.	Pioneer Hi-Bred Corn Co.	Pioneer Corn Co., Inc.
Coon Rapids, Iowa	Des Moines, Iowa	of Illinois; Princeton, Ill.	Tipton, Indiana

"After fire hit my farm— friends built this pole barn in two days,"

says **CHARLES HUSTON**
of Watkins Glen, New York

Fire—the dread of all farmers—swept through the Charles Huston Farm in November, 1955. Three buildings were razed, including the dairy barn. The owner wanted to replace this barn as soon as possible, because his stock was temporarily quartered on a nearby farm.

Koppers Poles like this provide lasting support for pole-type buildings.

He found out that a conventional barn of the size needed would run $16,000 to $18,000, and his insurance would not cover this amount.

Acting on the suggestion of Mr. Irving Davis, County Agricultural Agent, Mr. Huston inspected several pole-type barns. He found that they are just as practical and permanent as conventional barns, as well as being lower in cost and easier to build. He cut timber from his own wood lot, bought galvanized roofing sheets and Koppers Poles. Then a barn-raising bee was held. Students and neighboring farmers, totaling 87 men, handled all of the construction, and *within two days* the new pole barn was built, ready for the dairy stable to be finished inside. Furthermore, material costs were cut almost in half!

Koppers Poles are the backbone of buildings like this. They are pressure-treated with creosote to give thorough protection against rot and termites. For free details on pole-type farm buildings, just send in the attached coupon. Koppers Company, Inc., Wood Preserving Division, Pittsburgh 19, Pennsylvania.

Mr. Huston tells his County Agent, Irving Davis, that he is proud of this sturdy new pole barn. He found it more economical to build and more practical to use than old-fashioned high-roofed barns.

Koppers Company, Inc.
Dept. FQ-96, Koppers Building
Pittsburgh 19, Pennsylvania

☐ *Send me free information about pole-type construction.*

☐ *Send me free catalog describing building plans available.*

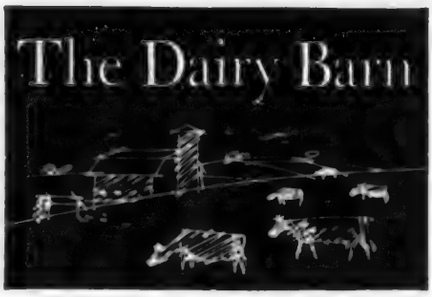
Name .....

Street or RFD .....

Town ..... **State**.....

KOPPERS

KOPPERS POLES



United We Prosper

The Biltmore Estate is a big, lush example of what might be called enlightened Twentieth Century feudalism. It combines some of the better aspects of the old system, such as the cooperation of a group of families of related interest, with the very latest equipment and management techniques in a big, unique dairy operation. The Biltmore system probably couldn't be adapted to every dairy farm, but since the Army learned a good deal about logistics from circuses, dairymen might pick up a few ideas, particularly ideas on the co-operative use of machinery, from a look at the Biltmore operation.

The Biltmore Estate is a fabulous lay-out of 12,000 acres of timber and farm land along the French Broad River on the southeastern edge of Asheville, North Carolina. Two-thirds of the area is in trees and the balance is divided among 10 family-sized dairy farms. In the center of the spread is a fantastic castle of more than 300 rooms, built around the turn of the century by George Vanderbilt, the founder of the estate. It is of such huge and majestic proportions it was used as the setting for the recent Grace Kelly movie, "The Swan". There were originally 90,000 acres in the estate.

How George Vanderbilt got into the dairy business is just as fantastic as his castle. With something over 200 spare bedrooms and free board available, summer guests arrived at Biltmore by scores. This produced some grave commissary problems, the most serious of which was a fresh milk supply. The master of Biltmore solved this in a simple, direct way by going to the Isle of Jersey and buying a herd.

But following the departure of the last guest in the fall, he found himself in a predicament similar to Mr. Benson's present plight—a surplus of milk and no drinkers. Obviously, the solution was to sell it to the people of Asheville. So sell it he did, but this in turn created another problem. How could he desert his faithful Asheville customers during summer?

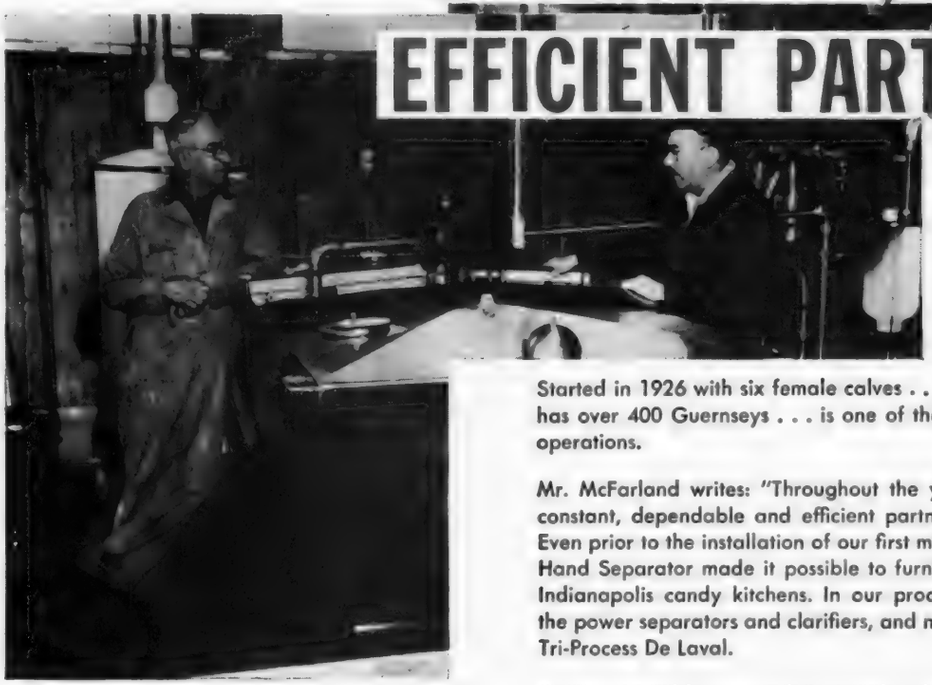
The nice thing about being a Vanderbilt is that problems of this nature are easily solved. Another pleasant trip to the Isle of Jersey, the importation of another herd, and all was well again. That's how the Biltmore Estate got into dairying.

But the manner in which it is run today is a far cry from the happenstance that brought the Jerseys to its meadows. One

(*Continued to page* 141)

Greyble McFarland of Guy McFarland & Sons, Indianapolis says . . .

"DE LAVAL IS A DEPENDABLE, EFFICIENT PARTNER . . ."



Started in 1926 with six female calves . . . the McFarland farm today has over 400 Guernseys . . . is one of the nation's outstanding dairy operations.

Mr. McFarland writes: "Throughout the years De Laval has been a constant, dependable and efficient partner in all of our operations. Even prior to the installation of our first milking machine, the De Laval Hand Separator made it possible to furnish premium sweet cream to Indianapolis candy kitchens. In our processing operation, first were the power separators and clarifiers, and now, the advanced series 390 Tri-Process De Laval.

"It was natural for us to ask De Laval to design and install our combine milker-bulk tank operation in the new production unit last year.

"From time to time we have given silent thanks for the De Laval helpers that aid in all of our milk production and processing operations. Without them, our dairy could not economically survive, without them, the pleasure of work would decline to drudgery. So, after all these years, and especially since January 6, 1956 when we opened our new milking unit, we want to extend our thanks to De Laval for their continuing contributions to our advanced and progressing dairy."

Get all the details on De Laval Combine Milkers . . . mail coupon today.

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Without obligation, send me proof that a De Laval Combine Milker can cut my production costs, increase my milk profits.
I prefer ☐ Separate milking room ☐ Dairy barn installation
I milk about _____ cows
Name _____
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CAT* D2 TRACTOR

. . . for better farming at lowest cost!

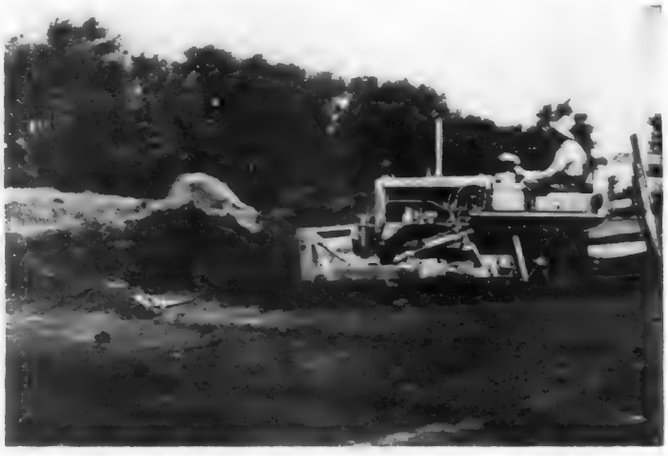
Discover how the D2 promotes greater farming efficiency. Call your Caterpillar Dealer for a D2 demonstration. Check the D2's diesel economy, crawler traction, big working capacity. See how much you can do with heavy-duty implements. For example, watch the D2 handle dirt-moving, clearing, land forming jobs that ordinary "limited-duty" farm tractors can't. Make that date with your Caterpillar Dealer today!

CATERPILLAR TRACTOR CO., Peoria, Ill., U.S.A.

38 drawbar HP

HARVEST WHEN THE CROP IS READY . . . this Pennsylvania farmer gets his crop out in top condition and when prices are favorable. His D2 pulls a picker-sheller through mud, following a two-day rain and thaw . . . tracks do the trick!

GAIN THE ECONOMY OF CAT DIESEL POWER . . . on this Nebraska farm, a D2 powering an irrigation pump operating at 1200 GPM around the clock, 40 to 50 days per year, saves 60% to 80% fuel costs over gasoline power.



IMPROVE YOUR FARM, DO CUSTOM WORK . . . clearing land, moving dirt, building dams and trench silos—a D2 with Cat "Swing-Around" Tool Bar does all this and more for its Iowa farmer-owner.

FREE BOOKLET NOW AVAILABLE: FARM TRACTORS AND BIG HITCHES *. . . see how farmers have cut their operating costs by using big equipment pulled by Cat Diesel Tractors. See your Dealer or write Caterpillar Tractor Co., Dept. FQ96, Peoria, Illinois.*

CATERPILLAR*

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NAME THE DATE YOUR DEALER WILL DEMONSTRATE

Make More Money with Less Acreage in 1957 by Testing Your Soil NOW!

IT'S EASY TO DO

You can make tests anywhere, anytime—even out in the field. Get your answers RIGHT AWAY, with the Sudbury Soil Test Kit.

The Soil Is Now Dry and Firm. You'll Save Time and Labor—Avoid Spring Rush and Wet Weather. Save Money Too—Fertilizer Costs Less in the Fall. You'll Also Know How Much and What Kinds to Buy this Winter.

SOIL-TESTED ACRES PRODUCE MORE

No Fertilizer | Lacked Phosphate | Needed Potash | Fertilized Correctly

10-Fold Increase in Wheat

Without the right fertilizer in the soil, even the best farmer cannot prevent crop failures.

Amazing tests on wheat by a leading ag college show how yield increased ten-fold with proper fertilizer.

A vigorous root system as well as lush, heavy top growth was the result of correct fertilizer guided by soil tests. Even when soil lacked only phosphate or potash, yield dropped nearly 40%.

Bumper Yield—or Crop Failure!

The Agricultural College experimental field at right shows the gain from using correct fertilizer YOUR soil needs.

this corn grown on balanced soil | one missing element caused this failure

The puny plant and deformed nubbin at left are from a field not properly fertilized. Rotted joints and roots made the corn lodge.

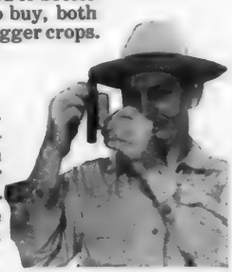
Using right fertilizer produced sound stalks and perfect ears as pictured.

Make Every Dollar Spent for Fertilizer Bring Back up to $10 in Extra Yield

HERE'S your best weapon in the battle to raise your income, and keep farming costs down. See right now how much fertilizer this year's crop took out of the soil—how much to replace for bigger and better yields. Make the acres you plant produce up to double past yields. Extra bushels, bales or tons cost you nothing, and pay far more than parity payments! Your Sudbury Soil Test Kit also helps get soil-bank acres ready to meet greater demands for food soon to come.

Test your soil NOW! Experts say fall fertilizing is as good or better than spring. You'll know just how much and what kinds to buy, both for now and this winter. Save hundreds of dollars, yet get bigger crops.

Save Up to $15 an Acre on Fertilizer



Besides getting bigger yields, you'll save money on fertilizer—use only what your soil needs. Guessing costs plenty—wastes time and money. Fertilizer is the biggest expense on any well-run farm. Your Sudbury Soil Test Kit makes it your best investment—brings you bigger crops, cuts costs way down.

A Pennsylvania farmer was going to spend $700 for lime but not a single field needed any; some already had too much. He not only saved $700, he got better crops without it.

No Knowledge of Chemistry Needed

EASY AS READING A THERMOMETER

So simple, anyone can use it. Even your first tests will be accurate and reliable. Takes only 10 minutes, costs less than 10c a test. No samples to mail, no waiting for reports.

Farmers deLuxe Soil Test Kit

This is the famous Farmers deLuxe Kit, complete with everything for hundreds of tests. More valuable than all your stock and tools! Shows right amount of nitrogen, phosphate and potash for each field. Also whether lime is needed (pH) and how much. Lifetime welded steel chest with carrying handle—built for heavy duty. Weighs only 12½ lbs. Easy instructions show needs of 225 different crops. **Big Value, only $29.95.**

SEND NO MONEY

We'll mail C.O.D. plus postage. Or send check and we'll pay postage, saving you from $1.91 to $3.55 in postal charges.

Money-Back Guarantee

If you are not completely satisfied with your Soil Test Kit, return it in 10 days and **get your money back!**

BETTER CROPS Guarantee

YOU TAKE NO RISK

We are so certain you'll get bigger yield, you can send your Kit back anytime within a year if you don't, and we'll refund your money.

If desired, use our Easy-Payment Plan (see coupon).

FREE BOOK

If you send check, we'll also include the valuable 64-page book on farm management, "Our Land and Its Care," **FREE!**

Order Right Away!

FREE TRIAL

500,000 Users Can't Be Wrong!

A.D. of Indiana nearly doubled his corn yields as a result of testing his soil. He also gets 30% more wheat and soybeans per acre.

G.H. of Ohio "Have made many tests; like its simplicity and accuracy. Worth 1000 times its cost on my 320 acres; found them low in phosphate."

S.G.H. of Michigan "guessed" his potato field had enough potash but needed nitrogen. Tests showed he was wrong. He saved the nitrogen, bought potash and doubled his yield.

A.F.B. of Iowa increased his bean yield 50% by correcting phosphate and potash deficiencies his Sudbury Soil Test Kit revealed.

W.L.D. of Pennsylvania saved $400 on fertilizer. "The Kit has paid for itself over and over again." That's real satisfaction!

R.S.G. of Indiana tested his soil and discovered potash was badly needed. He has increased his corn yield 20%! He also reduced fertilizer costs by using only what his Sudbury Soil Tests showed was needed.

Hardware, Seed, Grain and Farm Supply Stores: Serve Your Customers by Carrying this Essential Aid to Better Farming.

SUDBURY Soil Test Kits

SUDBURY LABORATORY, Box 46 C, South Sudbury, Mass.

World's Largest Makers of Soil Testing Equipment

SUDBURY LABORATORY
Box 46 C, South Sudbury, Mass.

Send me the Farmers deLuxe Sudbury Soil Test Kit at the special low price marked below:

☐ Enclosed is $29.95; send postpaid; include free book, "Our Land and Its Care."

☐ Send C.O.D. plus postage.

Name .....

R.D. or St. .....

P.O. ..... *Zone* .... *State* .....

☐ Send on Easy-Payment Plan—I'll pay mailman $4.95 plus postage, then 4 monthly payments of $6.75 each.

B.F.Goodrich Farm Tire Rodeo

Fall round-up of tire values

Big trade-ins available on all sizes and types of tires.

POWER GRIP

rear tractor tire

Biggest tire value on the market today! Comes on new tractors.

53.45* 9-24 4 ply

*plus tax and your retreadable tire

SIZE	PLY	SALE PRICE*
10-28	4	72.95
12-38	6	130.60

All sizes available

SUPER HI-CLEAT

rear tractor tire

Same tread design that came on new tractors for years!

42.75* 9-24 4 ply

*plus tax and your retreadable tire

SIZE	PLY	SALE PRICE*
10-28	4	58.30
11-28	4	66.50
11-38	4	84.95
12-38	4	88.85

PLOW TAILWHEEL

Gives more uniform plowing depth, greater cushioning against shocks.

12.90* 3.50-12

*plus tax and your retreadable tire

GROOVED IMPLEMENT

For all implement and trailer free-rolling wheels.

12.25* 4.00-12 2 ply

*plus tax and your retreadable tire

All 4 ply tires	
SIZE	SALE PRICE*
5.00-15	15.10
5.50-16	16.45
6.00-16	18.90
6.50-16	20.45

NEW TREADS

For cars, pick-up trucks and wagons.

Prices from **9.95*** 6.70-15

*plus tax and your retreadable tire

B.F.Goodrich FRONT TRACTOR

Full size, fully guaranteed!

11.90* 4.00-15

SIZE	SALE PRICE*
4.00-19	13.65
5.00-15	13.65
5.50-16	14.85
6.00-16	16.55

*plus tax and your retreadable tire

GARDEN TRACTOR

14.15* 5-12

SIZE	SALE PRICE*
6-12	15.55
6-16	16.80
7-16	19.95
8-16	28.65

*plus tax and your retreadable tire

USED TIRES

Prices start at only **2.95**

Big selection for cars, trucks, implements and tractors!

PASSENGER CAR TIRES

11.95 6.00-16 Extra Service tube-type tire

12.95 6.70-15

Prices plus tax and retreadable tire

EXPRESS TRUCK TIRE

17.95 6.00-16

plus tax and your retreadable tire

Other sizes proportionately low priced

See your B. F. Goodrich retailer today.

B. F. Goodrich Tire Co., A Division of The B. F. Goodrich Co., Akron 18, Ohio.

B.F.Goodrich
FIRST IN RUBBER

Your B. F. Goodrich retailer is listed under Tires in the Yellow Pages of your phone book

How much is it costing you *not to have* the C & L Farm storage buildings *you need?*

BUCKEYE GRAIN BINS
All-steel, insect, rodent and weather-proof. Keep grain at high market value. Drying equipment optional.

"At combine time, wheat was $1.75 per bushel. By storing wheat in a Buckeye Grain Bin on a government loan I got $2.32 per bushel which more than paid the entire cost of storage."

DARVIN D. MEYER
Vincennes, Indiana

BUCKEYE CORN CRIBS
Rugged all-steel with exclusive drip-proof perforations. Blower-equipped to give maximum air flow for perfect drying of high-moisture corn. Rat-proof, weather-proof, fire-proof. Easily erected or moved.

"My corn profit paid for my Buckeye Corn Cribs in the first year. I found them easy to erect, absolutely rat-proof, and am well satisfied."

LAWRENCE B. SMALL
Wheatland, Indiana

YOU CAN WASTE as much as one-fourth of the feed value in your forage crops by make-shift ensiling methods, or by dry-fodder feeding — clipping extra dollars off your milk checks for winter feeds.

Lack of adequate storage can force you to market your grain at low, harvest-time prices. Field-drying can mean shattered grain, down-grading. Wooden cribs and bins can drain grain profits down the rat-hole.

You need modern, weather-tight, rodent-proof, all-steel storage facilities. *It is costing you money not to have the storage you need!*

A Silver Shield All-Steel Silo can produce low-cost, nutrition-rich silage that will keep your dairy cows at high productivity. A Buckeye Corn Crib will let you harvest early, regardless of moisture, and dry your corn perfectly, with no field loss, no rat problem, no weather damage. A Buckeye Steel Grain Bin can dry your grain easily for early cash or protect it at high market value for top-price selling. A Silver Shield Bulk Feed Storage Bin will stop hand-to-mouth feed buying, enable you to buy at wholesale.

There will never be a better time than right now to stop feed and grain waste. Get your storage buildings now, use them this season, pay for them easily out of your extra profits.

Send the coupon today for information on the *ALL-STEEL* Storage Facilities you need. See how easily you can protect your hard-earned profits.

SILVER SHIELD BINS & CRIBS
Heavy gauge steel dryer-equipped cribs and bins will more than pay for themselves through worthwhile savings.

"We are well satisfied with our C & L Bins. Last year we figure we lost $1,500.00 by having to sell our grain at low market. This year we have made about $1,800.00 *extra,* or nearly paid for the three bins and drying equipment in one season."

E. G. GALLREIN & SONS
Pleasure Ridge Park, Ky.

SILVER SHIELD SILOS
The durable, all-heavy-steel silo that withstands grass acid damage, protects valuable juices. Curved inside-opening doors that seal tight, open with one hand. Smooth walls—no clinging silage—perfect packing.

"My father purchased the steel silo on our farm 40-some years ago. During those years the silo has had very little maintenance and it is practically as good today as when it was erected."

STANLEY A. CRIST
Middletown, Ohio

Clayton & Lambert
MIDDLETOWN, OHIO

AMERICA'S MOST COMPLETE LINE OF FARM FEED STORAGE BUILDINGS

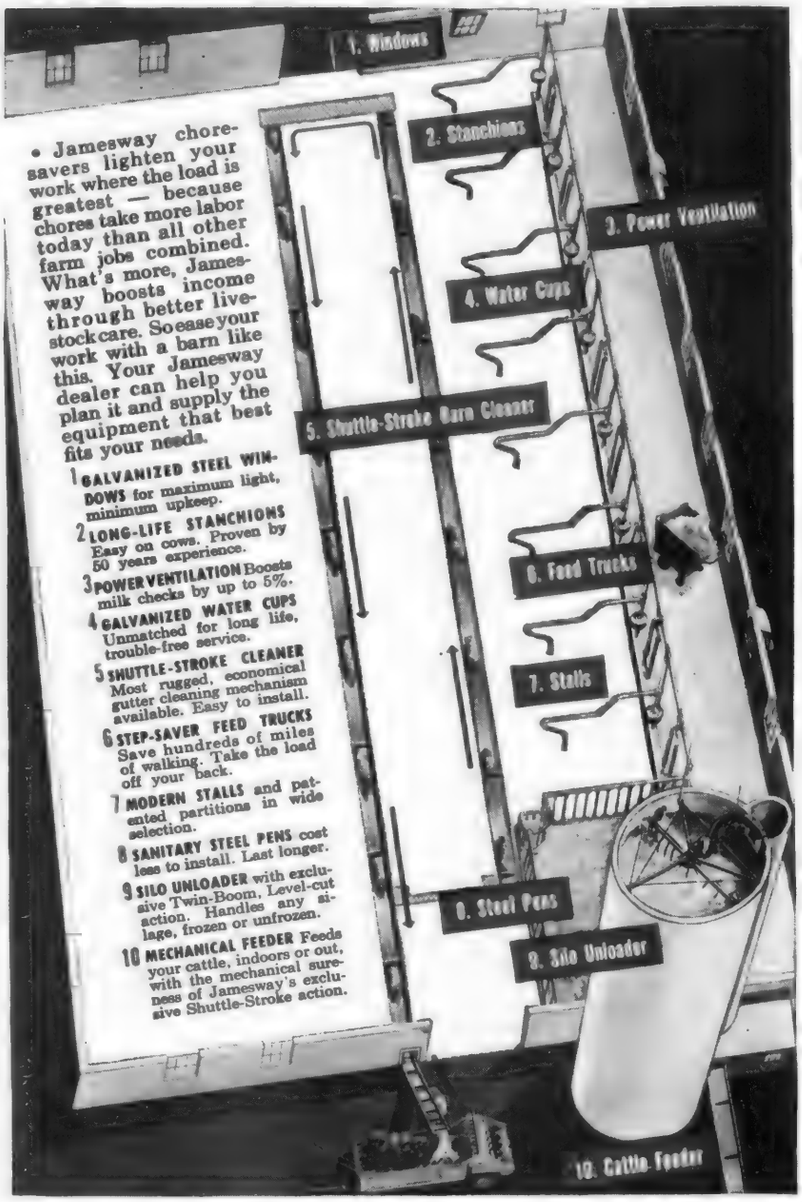
ACT TODAY!

CLAYTON & LAMBERT MFG. CO.
1015 Lamneck Street, Middletown, Ohio
Please tell me how I can modernize my facilities at low cost with Silver Shield and Buckeye equipment.
☐ Also send my copy of "Grain Marketing Digest"— full of tips, charts and money-making ideas.

NAME _____
BOX NO. _____ ROUTE _____
POST OFFICE _____

There's an easier way to do your chores

Jamesway helps with the plans, builds the labor-savers that make your old barn pay new dividends



• Jamesway chore-savers lighten your work where the load is greatest — because chores take more labor today than all other farm jobs combined. What's more, Jamesway boosts income through better livestock care. So ease your work with a barn like this. Your Jamesway dealer can help you plan it and supply the equipment that best fits your needs.

1 **GALVANIZED STEEL WINDOWS** for maximum light, minimum upkeep.

2 **LONG-LIFE STANCHIONS** Easy on cows. Proven by 50 years experience.

3 **POWER VENTILATION** Boosts milk checks by up to 5%.

4 **GALVANIZED WATER CUPS** Unmatched for long life, trouble-free service.

5 **SHUTTLE-STROKE CLEANER** Most rugged, economical gutter cleaning mechanism available. Easy to install.

6 **STEP-SAVER FEED TRUCKS** Save hundreds of miles of walking. Take the load off your back.

7 **MODERN STALLS** and patented partitions in wide selection.

8 **SANITARY STEEL PENS** cost less to install. Last longer.

9 **SILO UNLOADER** with exclusive Twin-Boom, Level-cut action. Handles any silage, frozen or unfrozen.

10 **MECHANICAL FEEDER** Feeds your cattle, indoors or out, with the mechanical sureness of Jamesway's exclusive Shuttle-Stroke action.

Hot-Dip galvanizing adds years to equipment life

• Special Hot-Dip galvanizing protects Jamesway equipment from corrosive barn fumes, moisture and hard knocks — provides a coating that is up to 30 times heavier than a normal application of aluminum paint.

Your Jamesway dealer is the man to see for all your modern chore-saving needs!

Jamesway

Mail this coupon for free barn equipment — Power Choring literature. Address: JAMES MFG. CO., Dept. FQ-96, c/o your nearest branch office.

Name ..... Route .....

Town ..... State .....

My herd totals about ..... cows.

Fast Milking

Sirs:

Your article on fast milking explained something that has puzzled me all my life. My father, who had strong hands and did everything very fast, used to get more milk out of our family cow than anyone in the family. He milked every other day because of his part-time job at a feed mill and we could measure the results he got with what the rest of us got. Now I know that he milked quickly while the cow was letting down her milk.

Mrs. Irene McGee
R. R. 3
Portland, Maine

One Vote For The Moon

Sirs:

Regardless of your story on The Moon and Andy, I know that you can't ignore the moon when you are planting certain crops. I've been planting by the moon for fifty years and I have had a good chance to experiment. Too many times I've planted melons, for example, in the wrong moon and got nothing but bloom. I'm sticking to my method until the scientists find something better. They haven't proved to me that there's nothing to it.

Mrs. Lon Stevens
Keokuk, Iowa

Medallions On Barns

Sirs:

In the 1954 Autumn issue of THE FARM QUARTERLY, page 58, there was an article on "Pennsylvania Barns" by Henry J. Kauffman. Due to the similarity of names different people have referred to me about that article being one of my contributions.

It so happens that my philosophies concerning the "Medallions" placed on many Pennsylvania barns differ from those of Henry J. Kauffman. Under separate cover I am sending copies of two issues of the "Pennsylvania Farmer" which contains my articles on these barn symbols. The intent of these articles is to explain historical changes in land ownership policies, some of the problems associated with these changes, and how the various insignias have been emblematic of these various movements.

Harry H. Kauffman
State College, Pennsylvania

Henry Kauffman said the medallions or hex marks were originally put on the barns to ward off evil. Harry Kauffman contends in his articles that they were symbols of private ownership.

Strike

Sirs:

On page 122 of your last issue, in the article by Grant Cannon, is a statement that in Detroit the farmer got a raise of 59 cents per 100 lbs. and the public was given a 1½-cent a quart raise or 50% more than was paid the farmer.

The method we have used in figuring milk prices here is on the basis of 46½ quarts per 100 lbs. Using that figure, 1½ cents a quart would be equal to 69¾ cents per 100 lbs. charged to the consumer. This hardly figures out to be 50% more than 59 cents.

(*Continued on page* 144)

For beauty, for "hiding"
On all kinds of siding,
For protection surpassing all others . . .
Get the paint proved by test,
And be sure of the best . . . It's
That wonderful paint by Lowe Brothers!

A wonderful way to paint!

Natural color photography by Wesley Bowman

What other investment can add so much value to your home for so *few* dollars as fresh paint? What other improvement can bring its equal in enjoyment and pride? To *keep* that glow of pride over the years, be sure you put those few dollars into the best paint you can buy—Lowe Brothers *style-tested, quality-proved* paints. Choose from a wider range of outside colors than ever before.

There's a friendly Lowe Brothers dealer near you who has the right paint for your home. He'll gladly recommend a professional painter, if you wish. The Lowe Brothers Co., Dayton 2, Ohio.

FACTORIES . . . DAYTON—OAKLAND—TORONTO

High Standard House Paint is tops in 2-coat beauty and protection. Has set the standard for fine house paint since 1870. Wide choice of colors.

Choose Shingle 'N Shake House Paint for a soft lustreless finish on *any* home surface: Rough or smooth siding, shingles, shakes, brick, cement, stucco or asbestos. One coat usually does the trick.

Super One-Coat House Paint gives a "Two-coat look at one-coat cost!" Dazzling white . . . intense hiding . . . very durable. Full bodied, yet brushes easily.

Makers of *Super Kem-Tone*® . . . KEM-GLO® and
LOWE BROTHERS PAINTS for HOME and INDUSTRY

LOWE BROTHERS PAINTS

Wheels on the Farm

Few products today take more continual punishment than wheels on the farm. And few products have been made so dependable.

The building of wheels of *proven dependability* has been the business of Kelsey-Hayes since the day of the team-drawn dray. Today, practically everything that rolls on the farm—from tractors, trucks and trailers to the family car—rolls on wheels by Kelsey-Hayes. Kelsey-Hayes Wheel Company, Detroit 32, Michigan.

KELSEY-HAYES

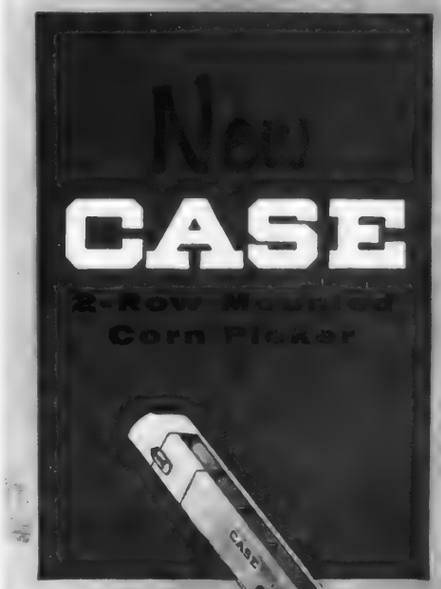
A Major Supplier to the Automotive, Aviation and Agricultural Industries

TEN PLANTS / Detroit and Jackson, Michigan; McKeesport, Pa.; Los Angeles, Calif.; Windsor, Ontario, Canada • Davenport, Iowa (French & Hecht Farm Implement and Wheel Division) • Springfield, Ohio (SPECO Aviation, Electronics and Machine Tool Division)

Newest Machine for the Famous

CASE "400"

...the 4-plow tractor that set a world's record for fuel economy



Mounting on the famous Case "400" Series Tractor that set a world's record for gasoline fuel economy, the new Case "420" Corn Picker can be attached or detached in minutes, freeing the tractor for other pressing fall work . . . all with no need for separate jacks, hoists or blocks since hydraulics do the work. You'll be surprised, too, when you see your Case dealer and discover how you can buy this modern two-row mounted picker for a small down payment . . . and take care of the balance under the flexible Case Time Payment Plan.

Its gathering design with chains well forward of a low center point saves more ears, especially in down corn. A full 4-roll husking bed with two laminated rubber rolls working against two fluted cast iron rolls efficiently remove husks. A chain rake conveyor beneath the rolls saves corn shelled during husking and deposits it in the elevator hopper. Controls are all conveniently operated right from the tractor seat.

Case Forage Harvesters . . . standard or full-range-cut . . . give you full selection of quick-change heads to chop any crop, including row-crop unit for corn silage.

New Case Corn Harvest-All picks and husks ears, chops stalks and leaves at same time. Converts to standard row-crop chopper. Takes windrow pick-up and cutterbar heads.

Case One-Row, Pull-Type Picker has the capacity to pick and husk clean even the highest-yielding, biggest-eared hybrids, yet costs little to own and operate. Be sure to see it.

Buy With Small Down Payment

See how you can enjoy all the crop-and-money-saving benefits of Case corn harvesting machinery right now under the sensible Case purchase arrangement. Find out how easy it is to buy and make payments conveniently suited to your income and type of farming.

See Your CASE Dealer . . . find out about Case Pickers, Choppers, Blowers, Elevators. For catalogs, write J. I. Case Co., Dept. J-906, Racine, Wis.

OLIVER SUPER 55 TRACTOR uses VICKERS® HYDRAULICS to provide SUPER VERSATILITY

AUTOMATIC CONSTANT DRAFT CONTROL

AUTOMATIC IMPLEMENT POSITION CONTROL

When irregular ground or soil conditions tend to increase or decrease draft, the Vickers Servo Valve acts automatically to raise or lower the implement slightly. Movement is so smooth as to be almost imperceptible . . . with no sign of jump. Overloading, wheel slippage and stalling of tractor are prevented. Flipping a lever on the valve automatically provides constant depth regardless of ground contour or changing soil.

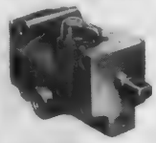
INDEPENDENT HYDRAULIC CYLINDER CONTROL

Addition of Vickers 3-in-1 Valve permits operation of pull-type and mounted equipment of all kinds independent of main hydraulic system but using same pump.

VICKERS® SERVO VALVE

Provides smooth, accurate and instant response to load or position changes of hitch tools. It is mounted inside the oil reservoir and has an external lever.

VICKERS® 3-IN-1 VALVE



Four-way directional valve with built-in flow control and relief valve is mounted externally to provide control for separate hydraulic system (front- or side-mounted equipment).

VICKERS® PUMP

Hydraulically balanced and having automatic wear compensation, this pump delivers more oil while taking less power. A single pump supplies all needs.

The new Oliver Super 55 Tractor demonstrates to excellent advantage the many benefits that Vickers Hydraulics offer the farmer. On the Super 55, a Vickers valve and pump are used to provide the 3-point hitch tools with either automatic constant draft or automatic constant depth . . . at the flip of a lever. By addition of the Vickers 3-in-1 Valve shown at the left, a separate and independent control system can be provided for operating front- or side-mounted equipment. Built-in overload relief protects against damage, while merely turning a knob on this valve changes the amount of oil flow for fast or slow operation.

This is another example of the many ways in which Vickers Hydraulic equipment is working on the farm . . . helping make a wide variety of jobs easier, quicker, more economical. The next time you buy farm machinery, it will pay you to make sure the hydraulic units are Vickers.

People who look for quality in tractors and farm equipment also look for VICKERS.

7505

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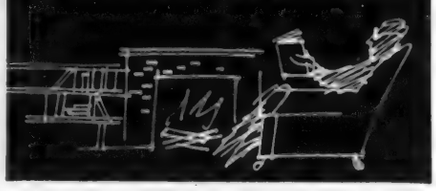
ENGINEERS AND BUILDERS OF OIL HYDRAULIC EQUIPMENT SINCE 1921

Farm Books



Since this is a political year with elephants and donkeys running wild over the country, it is not surprising that a book on livestock care, *Feeds and Feeding,* tops the list of 135 farm books which we checked to find the ten best sellers in the farm field, but then this book has topped the best sellers in agriculture for most of its 58 years and 21 editions of existence. Of greater significance to the political pundits is the second book on the list, *A Practical Guide for the Beginning Farmer.* We can see how this fast-selling title could be interpreted by either Democratic or Republican spokesmen, but we've sworn off politicing ourselves. The remainder of the ten most popular are: *Beef Cattle,* by Snapp, which came in a close third; fourth was *Veterinary Handbook for Cattlemen:* the long-time favorite on soils, *Soils and Fertilizers,* was fifth. The sixth and seventh on the list were compiled by the same author, W. R. Thompson; they are *The Livestock Book* and *The Pasture Book.* Eighth on the list was the late Louis Bromfield's last book, *From My Experiences.* Ninth was the old standby, *Farmer's Handbook;* and the tenth takes us back to the grass roots where all public policy is proverbially decided, *Grasses and Grassland Farming.*

We doubt that anyone will be able to make much of these facts politically. We, however, profited by the review when it dawned on us that the best seller of all best sellers was not included in the books we recommend. This we will correct by adding the three standard translations of the Bible to our list.

THE FARM'S PICTURES

Cover by J. C. Allen and Son

32 and 33—Grant Heilman. 34 and 35—Charts by Fred Eichenberger. 36—Robert B. Goodman. 39 thru 41—American Forest Products Industries, Inc. 42—Voorhees Fisher. 43—Fred Knoop. 44—Grant Heilman. 45 thru 47—Drawings by Fred Eichenberger. 48—Fred Knoop; North Dakota Agricultural College. 49—Madeleine Osborne, USDA; Fred Knoop; W. P. Sebens, Greater North Dakota Assn. 50 thru 53—Fred Knoop. 54—Ernst Peterson. 55—Frank Farmer. 56 and 57—Fred Knoop. 58 and 59—Robert B. Goodman. 60—Charles R. Koch. 61 thru 63—Fred Knoop. 64 and 65—Robert B. Goodman. 66 and 67—Ewart A. Autry. 68—Joe Munroe. 69—W. L. Ayers. 70—Bettmann Archive. 71—Hal Rumel. 73—Bettmann Archive; Hal Rumel. 73—Bettmann Archive. 72 and 73 (bottom) Drawing by Fred Eichenberger. 74—Chart by Fred Eichenberger. 74 and 75—Robert B. Goodman. 122—Clay Equipment Corp.; New Holland Machine Company.

The author of *Tennessee Vittles,* Virgil Lane, lives in Marquette, Michigan. The locale of his sensitive rural stories is usually Tennessee, where he spent his boyhood and youth.

the New HD-6

Engineering in Action *on Tracks*

Never before has six tons of crawler tractor had a commanding look, or sound, like the new HD-6 — or so much new earning power to back it up:

new Allis-Chalmers 344-cubic-inch displacement diesel engine with fuel-saving Tornado Turbulence and follow-through combustion.

new long-wearing ceramic-type master clutch.

new 24-volt direct electric starting.

new operator position and comfort — up out of the dirt, with combination foam-rubber and spring cushions.

new gear-shifting smoothness.

plus 1,000-hour lubrication for track assemblies, rubber engine mountings to cushion vibration, all-steel box-A main frame, high ground clearance with double-reduction final drive, and long-wearing, through-hardened True-Dimension tracks.

THE HD-6 IS A NEW TRACTOR . . . incorporating the most advanced basic design, with a wealth of new engineering features that bring higher standards of power, strength, balance and operating convenience to crawler tractor farming . . . all-round performance unequaled in its power class. Shown here with matched Allis-Chalmers deep tillage equipment.

FARM EQUIPMENT DIVISION, MILWAUKEE 1, WIS.

New HD-6

Weight — 12,400 lbs.

Pounds Drawbar Pull (low gear) 11,525*

Net engine hp — 57

*Limited under normal tractive conditions to 90 percent of total weight of tractor and mounted equipment.

ALLIS-CHALMERS

Save Time–Save Labor–Save Wages

Witmer's Farm, Dalmatia, Penna., Mark M. Witmer, owner. 355 acres. 40 Pure Bred Milking Guernseys, 24,000 Alger White Rocks, 40 acres apple and peach orchard.

Russell W. Keiter, Sr., feeds orchard prunings and cuttings into Model C-5 Fitchburg Chipper at Witmer's Farm. Fitchburg Chipper has been used since 1953 with an estimated labor-saving of 40%.

More and more farm executives with dairy cattle, fruit orchards, or poultry flocks are finding that Fitchburg Farm Chippers save time, labor and wages by converting waste wood materials such as slabs or pole wood into dairy bedding, and prunings or fence row clearings into excellent poultry litter and mulch.

CHIPS FROM WASTE WOOD COST YOU NOTHING

For Dairy *Use Chips for Bedding* (See Purdue University Circular 395)

Wood chips for dairy bedding are highly absorbent and have excellent holding properties. Cows like their resiliency. Pen barns, bedded with wood chips, can be cleaned with less effort than with straw. Chips kick over and last longer than other types of bedding. Use chips just outside pen barn doors—you will find areas stay more solid and dry longer than with straw or dry hay. Charles W. Miller, Farm Manager, *Tranquillity Farm, Middlebury, Conn.*, says: "The Fitchburg Chipper Model C-9 which we purchased in 1951, is performing most satisfactorily. We use it at our sawmill mostly to chip pine slabs for stable bedding for our dairy cattle—102 cows in milk this month. We have a blower attachment so chips are blown into a sawdust pile from the mill. This furnishes bedding at a saving of about $4.00 per cord. That is a saving of almost half the cost of what we have paid for purchased sawdust or shavings for bedding. Pole wood or any hard wood can be chipped as well."

For Orchards *Use Chips for Mulch* (See USDA circular #891)

A Fitchburg Farm Chipper chips prunings and cuttings instantly, right on the spot. Leave the wood chips around the base of trees as an efficient moisture-holding mulch (one recent test showed birch chips to hold 4½ times as much moisture as their dry weight). Wood chips stay put, help prevent weed growth, discourage rodents. Labor savings are great. No sod mulch or sawdust to haul in, no prunings to haul out. No need for burning. Alfred Caggiano, Assistant Manager, *Sunny Slope Farms, Bridgeton, N. J.* says: "We have been faced with limb disposure problems on our farm for many years. After our pruning season had ended, it meant loading these limbs and branches and hauling them somewhere. Now that we are using our Fitchburg Chippers, we find that we can cover our Gaffney, S. C. and our 600 acres in Bridgeton, N. J., in half the time. Not only do we save in time and labor, but we find the chips serve as an ideal mulch. We'd be lost without our Fitchburg Chippers!"

For Poultry *Use Chips for Litter* (See N. Y. State Col. of Agric. Mimeo Bulletin A-5)

Wood chips are ideal for shallow or built up manure pack. They have excellent insulating properties, are highly absorptive, tend to reduce odors, are dust free and "scratchable". Because of their excellent durability, wood chips maintain dispersion, provide bulk and are particularly long lasting. Wood chips are excellent for use when manured for use as a soil amendment. Litter is easy to remove from poultry houses and will not clog your manure spreader.

WHY FITCHBURG IS YOUR BEST BUY

Fitchburg Farm Chippers are built for rugged farm use—to operate long hours at a time and stay out of your shop. Blades are high-chrome, high-carbon steel and should not need frequent sharpening.

Only Fitchburg Farm Chippers have the spring-activated feed plate that "gives" with the brush, pole wood, or slabs entering the chipper, protects you in case metal or other foreign materials are accidentally fed, gives equal ease in chipping all wood sizes to machine's rated capacity.

Only Fitchburg Farm Chippers give you a ONE YEAR GUARANTEE. Best of all, you can own a Fitchburg Farm Chipper for as little as $960.

FITCHBURG ENGINEERING CORPORATION Fitchburg, Mass., Dept. FQ-96

Mail the Coupon Get Free Facts

Coupon brings specifications, new color cutaway drawings on how Fitchburg Farm Chippers work in action, full information and data.

Send free Fitchburg farm data.

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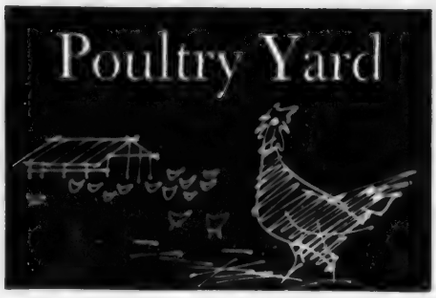


When to Cull Scientists at the University of Florida have been concerned with one of the dilemmas of the poultry industry—when should a bird be culled. When we cull a bird that is tapering off in her laying we cut off all further income from her as an egg layer. On the other hand, when we don't cull, our costs go up. After studying the records of several hundred trap-nested birds and the economics of the industry, these men came up with a formula which gives the percentage of laying below which we should cull. Here is their system: Divide the cost of 100 pounds of feed by the price you receive for a dozen eggs; multiply the answer to this division by the number three; the result is the per centage of production necessary to pay the feed bill. If a 100-pound sack of feed costs $4.50, for example, and eggs are selling at 34 cents, dividing feed cost by egg price would give the figure 13.2. Multiply this by 3 and you get 39.6, the minimum production necessary to pay for the feed. These poultry experts naturally recommend constantly culling hens which are obviously not laying and those which are injured or in poor health.

Robert Wallace, who wrote the article on page 44 on how to avoid having culls, feels that some culls can be profitably brought back to laying. The bird that has become a cull because she can't compete for food, water, and grit can be placed in an individual cage in the coop and given her share of the good things of a hen's life. Within a couple of weeks she can be brought back into good production. It is no use bringing these culls back, however, unless you are willing to provide enough feeding and watering space to prevent the more aggressive birds from turning her into a cull again.

Automatic Waterers The farmer who thinks he is saving money by carrying water to the chickens will be interested in a study made by the Iowa State College. The fact that chore time was reduced by 12 per cent on farms with automatic waterers is not particularly surprising—though this much labor saved should pay for a system in most cases. The reaction of the hens to plenty of water when they want it is something else again. The hens living in coops with automatic waterers laid 27 more eggs each year than those where water was hauled to them. In a flock of 300 this would mean 8,100 more eggs a year. At three cents an egg, this runs to $243 each year.

Before you plant another crop GET THIS NEW FREE BOOKLET

Read 42 case histories — Look at pictures
See how low-cost

HYBRO-TITE*

with 19 trace minerals plus potash
Helped to sustain soil fertility
Increased yields of grains, grasses, fruits and berries, vegetables and row crops

Many farmers and growers interested in building soil fertility **at low cost** are testing Hybro-Tite—Nature's Own 20-Mineral Soil Conditioner.

And in many cases, their tests are paying handsome dividends—in bigger yields, better quality, with **lower growing costs!**

This Hybrid Granite Gneiss frequently supplies one or more of the needed trace minerals that may have been leached out of the soil, or depleted by crop usage. Trace minerals sometimes act as catalysts to make available to plants the nutrients "locked up" in non-productive soils.

In soil building, Hybro-Tite gives you the advantage of hold-over values. One application may benefit your crops for from one to five years. Soil acids and alkalis, plus rainfall, break Hybro-Tite down gradually. Hybro-Tite's low first cost is further reduced on a **per year of soil fertility** basis.

Before you plant another crop, check your acreage—pick out the areas where you wish increased yields, or need to improve the soil. Apply Hybro-Tite this fall...let it **winter and weather.** Results next year will tell you how many more acres can be benefited by low-cost, easy-to-use Hybro-Tite.

Henry S. Blitch (left), Statesboro, Ga., applied Hybro-Tite to pasture at one ton per acre, with rock phosphate at 1000 lbs. per acre, in September, 1953. Since that time, no application of any kind has been made, except for light use of nitrate of soda. Several months later, after heavy rainfall, his pastures won third place in the local District Pasture Grazing Contest, and in 1954, first place. In 1955, Mr. Blitch's pastures won first place in the State Pasture Grazing Contest, and have provided "excellent grazing for two beef-type cows per acre."

Richard D. Caldwell, of Connersville, Indiana, applied Hybro-Tite to corn, soybeans, pastures and grains with equal success.

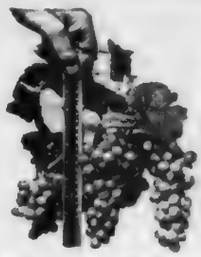
"With Hybro-Tite," writes Mr. Caldwell, "I can get better production and higher quality crops at lower cost, and, at the same time, do a better job of maintaining soil fertility in a long-range program."

To the right: a field of oats grown by Mr. Caldwell. Anyone can plainly see where the application of Hybro-Tite began. Mr. Caldwell himself holds the sign reading, "With Hybro-Tite."

TOP PRODUCTION AT LOWER COST! Martin Bitter of Genoa, Ohio (left), reports that with Hybro-Tite, even on his poorest ten acres of corn he got a yield well over average. On his better corn, his yield ran nearly 4 tons per acre, in spite of a very dry summer, and was grown at a much lower cost.

Robert Meyer of Frederick, Illinois, shown on the right in a field of soybeans grown with Hybro-Tite, says this soil conditioner is a "natural" to help you get top production and top quality at the lowest possible cost!

J. C. Collins of Rocky Ford, Ga., tested Hybro-Tite on apples, corn, cotton, vegetables. Here is his report: "15% more cotton, 35% more corn, 50% more butter beans, 50% larger apples, with 33% greater yield."



Louis W. Wahl, Harborcreek, Pa., estimated his grape yield, after applying Hybro-Tite, as about 60 per cent larger than the previous year's yield, at a 44 per cent reduction in his growing cost.

Jesse Thompson (above) of Paris, Ill., is enthusiastic about Hybro-Tite for strawberries. "Even though we have been raising strawberries for 15 years, this has been our most successful season," says Mr. Thompson.

NEW FREE BOOKLET: As your first step toward bigger and better yields and profits, be sure to read the booklet, *As Others Tell the Story of Hybro-Tite.* See what other farmers and growers say about this natural rock soil conditioner!

MAIL COUPON TODAY

Potash Rock Company of America, Inc.
Attention of Charles L. Davidson, President
Lithonia, Georgia

Please send me a copy of your new free booklet, *"As Others Tell the Story of Hybro-Tite."*

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Address_____

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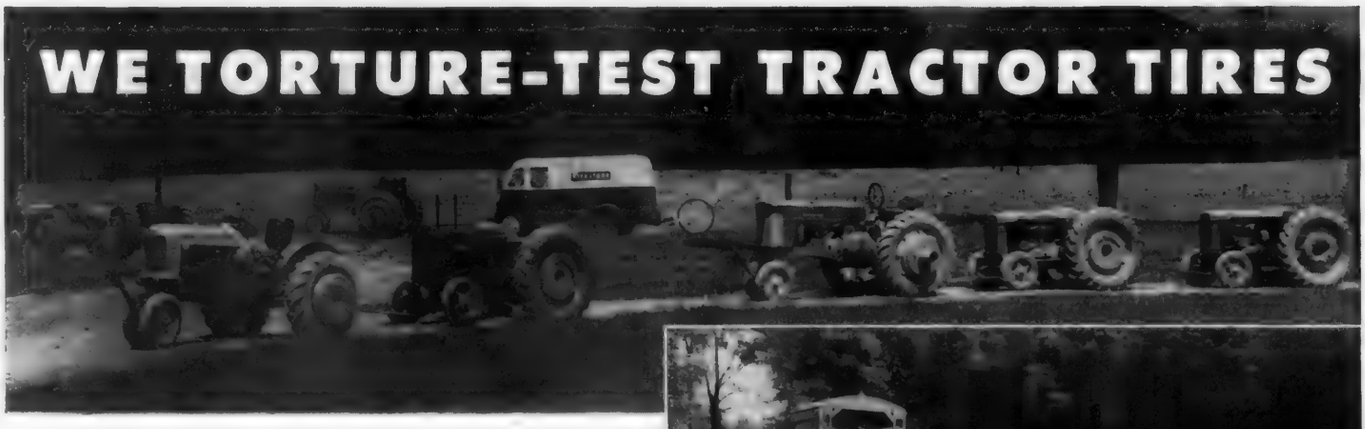
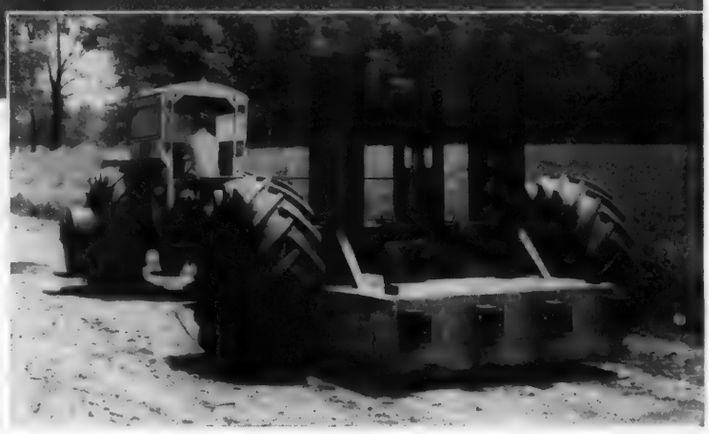
POTASH ROCK COMPANY OF AMERICA, INC.
Lithonia, Georgia

*Trademark of Potash Rock Company of America, Inc.
**Potash — plus aluminum, silicon, sodium, titanium, calcium, phosphorus, magnesium, iron, manganese, strontium, yttrium, silver, zinc, zirconium, lead, nickel, chromium, copper, vanadium.

WE TORTURE-TEST TRACTOR TIRES





Pilotless tractors work day in and day out testing tractor tires under the most adverse conditions. The units above travel around a center pivot post to which they are attached by cables. To the right, a tractor is punishing tires with a 12-ton load.

TO SAVE YOU MONEY

AT THE Firestone Test Station, Columbiana, Ohio, where the first farm tractor tire was developed, Firestone farm tires are being subjected to many torturous abuses—abuses far beyond the normal farm operation. This is being done to make sure Firestone farm tires will pull better, last longer and save you money when you put them on your tractor.

Grueling tests with heavily loaded, pilotless tractors, as shown above, expose tires to extreme sidewall flexing. Other exhaustive tests are also made on a mud course, sod-covered fields and hard country roads.

Tests are conducted for wear, slippage, aging, ability to deliver drawbar horsepower and other factors. All types of Firestone farm tires from the largest tractor sizes to the smallest implements go through such tests before they are ready for the public.

Tests prove conclusively that Firestone farm tires save you money with greater drawbar pull, better cleaning, longer tire life and better retreadability.

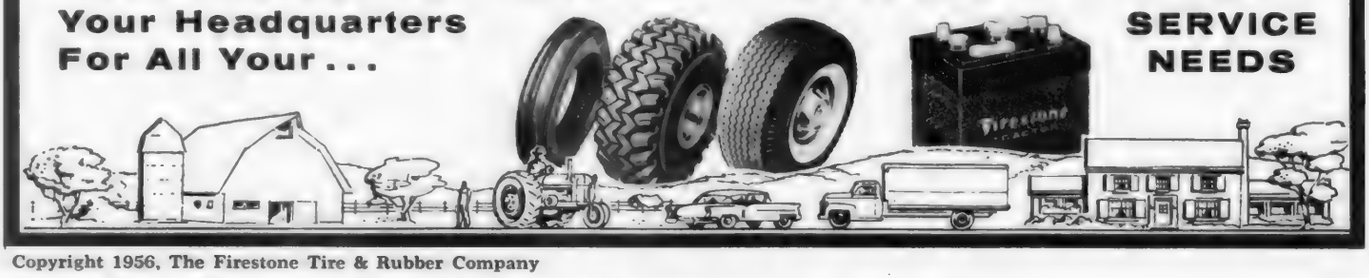
Let your Firestone Dealer or Store show you the many other features that help save you money.

ALWAYS BUY TIRES BUILT BY Firestone

Originator of the First Practical Pneumatic Tractor Tire

Make FIRESTONE Your Headquarters For All Your . . .

TIRE . . . BATTERY . . . AND SERVICE NEEDS



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Enjoy the Voice of Firestone on radio or television every Monday evening over ABC

Irrigate and prosper with
GORMAN-RUPP IRRIGATION PUMPS

Just one crucial two-week drought period in a whole year can turn a promising crop into failure. This is why more farmers every year are turning to sprinkler irrigation. Crop protection and, often, vastly increased yields make the investment so sound even bankers recommend it.

The key element in any irrigation system is the pump. Properly sized and matched to its power, it saves operating dollars over years of trouble-free use. If undersized and mismatched, it often proves a costly headache.

Make sure your system is soundly based on a Gorman-Rupp Irrigation Pump, backed by the combined experience of more satisfied users than any other make. Be practical about irrigation. Write Gorman-Rupp, today, about an engineered plan. No obligation.

26 MODELS in centrifugal pumps for every irrigation requirement. Pump-and-engine packaged units. Automatic check valve with lever control, shaft seal under suction, large drum-type fuel tanks—operational safety features standard. Engines: air-cooled, radiator, heat exchanger. Gasoline, LP, natural gas, kerosene and diesel. Also PTO driven pumps and basic pumps for electric power.

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305 Bowman St. • Mansfield, Ohio

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305 Bowman St., Mansfield, Ohio

Gentlemen: I want an Engineered Irrigation Plan developed for my farm. Have your irrigation engineer contact me at no cost or obligation to me.

Name_____

Address_____ P. O._____ State_____

Irrigation Acreage Estimate_____ Acres

☐ Lake ☐ River ☐ Ditch ☐ Pond ☐ Well

UPDATE YOUR TRACTOR POWER

"AS MUCH AS 12 MORE HORSEPOWER"

WITH

M & W add-POW'R PISTONS

Today's newest farm equipment, designed to do a bigger job on the farm, requires increased tractor power. M&W Add-POW'R Pistons give your present tractor the additional horsepower that makes your tractor far more powerful than today's newest model. Slash tractor operating time, fuel and labor costs with a matched set of M&W Add-POW'R Pistons. Actual field tests on equal acreages prove conclusively that a tractor equipped with M&W Pistons saves as much as 113 field hours yearly over standard equipment. Cash savings in fuel and operating time alone amount to nearly $200 each year.

If you want your farm dollar to do double duty—yet want more power than new models offer, buy tomorrow's new tractor performance today. Install genuine M&W Add-POW'R Pistons. Often copied—never duplicated. When you ask for M&W Add-POW'R, you get such power advancements as chrome rings, offset piston pins, adjustable ring tension, aluminum alloy construction, larger diameter and special sleeves. There are genuine M&W Add-POW'R Pistons for over 70 models and makes of tractors. See your nearby equipment dealer today.

TRANSMISSION TROUBLE??? GET 9 SPEEDS FORWARD WITH NEW M&W GEARS

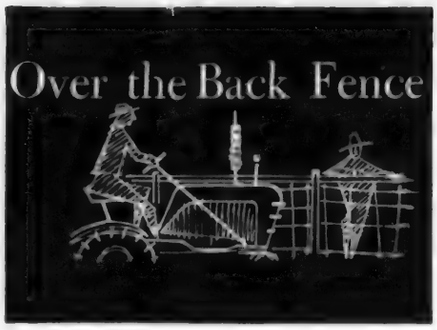
Next time your Farmall gives you transmission trouble, have your tractor dealer put in an M&W 9 Speed Transmission. For very few dollars more than necessary repairs would cost, you can have 4 additional field speeds between 4th and road gear. Stop wasting tractor power on field speeds too slow for light jobs such as hauling, hoeing, cultivating and harrowing. Save gallons of gas every day doing all your work at a speed best suited to the job. In less than a year fuel savings alone more than pay for your M&W 9 Speed Transmission. See your tractor dealer today for an M&W 9 Speed.

GET MORE OUT OF YOUR PRESENT TRACTOR
WRITE FOR FREE BOOK

Send postcard today with your name and address for this big 32-page Power Story book, "How To Get More Out Of Your Present Tractor."

For Better—Than—Standard Performance

M&W TRACTOR PRODUCTS
3903 GREEN STREET ANCHOR, ILLINOIS



Elephant Trouble The more we hear about farming in far-away places the more convinced we are that American farmers have a pretty dull, prosaic existence. Take the Ceylon farmer now—he's been having a heck of a time with elephants. The elephants come in from the jungle and tramp his crops and pull out his turnips and walk right through his house. Anybody who has seen a cucumber hill after an elephant has walked on it can well understand why the Ceylonese farmers are annoyed. Now they've taken to shooting the elephants and last year killed fifty. This the government frowns upon, for elephants are a valuable tourist attraction. They have supplied the farmers with firecrackers, which they say are just as good as guns to frighten the elephants away. But the farmers believe shooting them is more permanent.

Soil Bank Poker The only people who stand to benefit from the Soil Bank are members of the government bureaucracy. They're swarming around farms like locusts. They'll make a living out of the Soil Bank—the farmer will get the crumbs. There are Master Directives, Regional Directives, State Directives, County Directives, and Individual Farm Directives. Each has corps of directors of directives. The confusion is colossal. Farmers feel they're playing poker with the deuces, trays, one-eyed jacks and the king with the axe all wild.

Dusted Cattle Survive Seven of the 47 Alamagordo cattle, dusted by fallout from the first atomic bomb test, are alive. None of the 47 died from effects of the fallout. Most of them died of old age, a few were destroyed for experimental purposes. The only injuries were superficial skin burns. Fourth generation descendants show no obvious genetic effects.

Boon to Mankind Where is the farmer who can't show a blister from pulling a starter cord? There's now a starter on the market which can be attached to small air-cooled engines. Simply plug it in and away she goes. The engine division of the Clinton Machine Company, Maquoketa, Iowa, makes this boon to mankind.

"I'm MONEY AHEAD ON THE WAYNE 5-STEP HOG PROGRAM"

WAYNE HOG FEEDS

ALLIED MILLS INC

FOR More, Stronger Pigs at Farrowing	FOR Pre-Starting Baby Pigs	FOR Heavier Pigs at Weaning	FOR Growing Shoats at Lower Cost	FOR Faster, Earlier Marketing
WAYNE BROOD SOW SUPPLEMENT	WAYNE TAIL CURLER ROCKETS	WAYNE TAIL CURLER	WAYNE PIG BALANCER	WAYNE HOG BALANCER

Helps CUT COSTS – MARKET EARLIER

FREE GUIDE: *For the latest information on hog feeding, write to Allied Mills, Inc., Service Department, Fort Wayne 1, Indiana*

0-1949

The New Holland 800 cuts a clean, full 8-foot swath —wider than any other harvester

STEP ON THE GAS and let her go! Watch that rich silage pour into your wagons. With a New Holland 800 working behind you, you can clean up any field as fast as you like.

It's as easy to handle as harvesters with half the capacity. And you can reach all the controls right from your tractor seat.

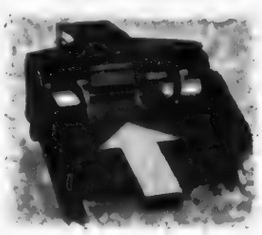
Nothing can touch the "800" for capacity. With its faster chopping, you cut down on your harvesting time and costs. But most important of all—you get better silage with the "800" because you can get more of your crop in at its peak feed value.

Let your New Holland dealer show you what this work horse can do! For a *free* booklet with the full story, please write us: New Holland Machine Co., New Holland, Pa. A subsidiary of Sperry Rand Corp.

Features that make the "800" your best buy

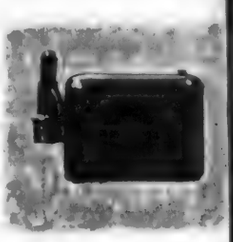
New, exclusive Micro-Sheer Cutter head with hardened steel blades set at angle for faster, cleaner chopping. Not a lawn mower-type cutter.

Five attachments. The king-size capacity of the "800" is only rivaled by its unusual versatility: 6- or 8-foot direct cut, 1- or 2-row corn head, or 6-ft. windrow attachment.



130-sq. in. throat opening. Exclusive spring-loaded feed rolls carry the huge amounts of material in a swift, steady flow to the knives without clogging.

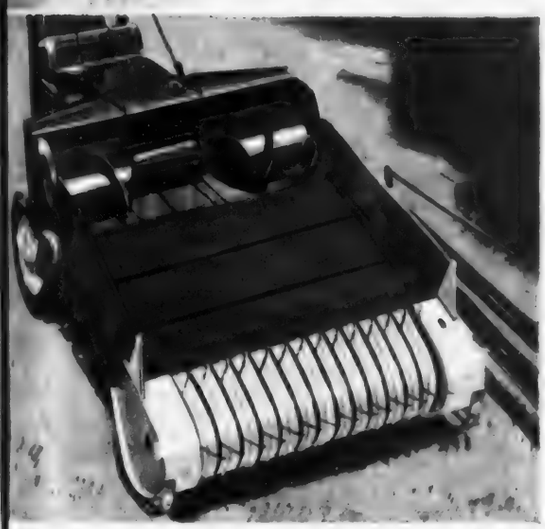
Finger-tip control. From tractor seat, move swivel discharge up to 180°, adjust deflector cap, raise or lower attachment...start, stop or reverse feed table.



69-h.p. Continental motor. Side-mounted for easier servicing, liquid cooled engine has power for heaviest conditions at top speeds. Electric self-starter incl.

No. 1 in capacity!

Chops up to 45 tons of silage an hour— morning till night— and loves it!



New 6-foot windrow attachment for the "800" Forage Harvester has the same pick-up design found on famous New Holland balers. This means you're sure of gentle, leaf-saving handling for all windrowed crops—wilted silage or cured hay.

New 2-row corn head lets you chop more of your crop when it's ready to be chopped. Field travel is cut in half. Less gas. Less wear and tear. Note the wide spread snouts—34 inches between points—it's much easier to keep in the row. The 1-row attachment has the same high capacity up to 45 tons an hour. In any row crop—whether it towers 15 feet high or is knocked flat by a hurricane—this New Holland 800 gets every bit of it.

NEW HOLLAND *"First in Grassland Farming"*

NEW HOLLAND, PA. • MINNEAPOLIS • DES MOINES • KANSAS CITY • COLUMBUS • FRESNO • CHARLOTTE • LOCKPORT • DENVER • NASHVILLE • SYRACUSE • BRANTFORD, ONT.

LOOK HOW THE RUNTS
ARE CATCHING UP WITH THEIR BROTHERS

The birth rate on runts averages out to about 1½ to every litter farrowed, or upwards of 20,000,000 a year. A lot of potential pork, but up till lately most farmers figured it didn't pay to save runts—even if they *could* be saved.

Then Ag scientists showed how extra Terramycin® in the ration took the damper off the runts' appetites, put meat on their ribs and a curl in their tails. Within months feed manufacturers were putting extra Terramycin in creep feeds and pig starters. Runts were catching up with their brothers (who were setting some new fast-growth speed records themselves), and scouring, the scourge of the hog lot, all but disappeared from thousands of farms.

This is just one example of how science, coming to the farm in a feed bag, is helping farmers to produce more meat, milk and eggs at lower feed cost and with less risk than ever before.

Pfizer's Agricultural Research and Development Farm in Indiana has helped to prove out and make practical many other uses of antibiotics, hormones, vitamins and new sources of extra-growth factors.

What next from Pfizer and your feed man? Maybe it will make *any* pig that takes more than 5 months to reach 200 pounds look like a runt.

Science comes to the farm in a feed bag.

Pfizer

Pfizer Agricultural Research and Development Department

5 fabulous minutes at the wheel and you know the *miracle* of

hydramic power

JUST 5 minutes at the wheel . . . and you recognize the magic of Hydramic Power.

Hydramic Power in the MH50 pools total hydraulic and mechanical power into greater staying ability . . . puts automatic traction instantly at your command.

This miracle Massey-Harris delivers power where you need it — to push, pull, lift, lower, adjust, operate — expands the power applications and jobs a tractor can do.

New features of the Massey-Harris MH50 include: Torque Master 4 Engine, 8-speed transmission (6 forward, 2 reverse), Duo-Range Clutch, Double-Duty PTO, Draft Monitor 3-point hitch, Hydramic Master Control, Power Steering (optional).

Ask for a demonstration

See your Massey-Harris dealer today. Test drive the fabulous MH50 and get full information on the Massey-Harris Time Payment Plan with its unique insurance feature to protect you against losses of many kinds. For folder, write: Massey-Harris, Dept. J-232, Racine, Wis.

new TRACTORS

Always

keep your eye on

Massey-Harris

FOR BETTER FARMING JOIN YOUR LOCAL SOIL CONSERVATION DISTRICT

The Revolution in

FARMING, as the western world knows it, had its start in the Biblical lands of the Middle East. For centuries it went its placid and unhurried way, with little or no change. So little did it change in 30 centuries that had an ancient husbandman of the valley of the Euphrates been resurrected and brought to an American farm of, say 1915, he would have had little difficulty in adapting himself to the crops and tools and methods of the period. He might have found the horse a little faster than the ox; he would have recognized the binder as a logical improvement over the sickle and scythe. It is true that the steam threshing rig would have been an amazing thing to him, but by and large, he would have found the progress which had been made in 30 centuries or more of farming could have been measured in mere inches and ounces.

Then along in the second decade of the present century came the first of a series of revolutions. The pace has accelerated since 1940. The farm boy who went off to war in 1941 came home a few years later to find a much different kind of farming than he had left. If he dallied in school or industry for a few years after handing in his uniform he found himself in an atmosphere in which only the trees were the same when he returned for another look at the farm. And in many cases even the trees had been moved to make bigger fields for the more economical use of mechanized equipment.

Increased Yields

There was a time when it was believed that eventually land would be the most limiting of the farmer's resources. But, the huge surpluses American farmers have piled up in spite of an ever-increasing population have been produced on a relatively

For a graphic presentation of trends in farming see the following two pages ▶

Farming

By Charles R. Koch

stable acreage. No more crop land was in use in 1940 than in 1920. At no time in the last 15 years has it exceeded the 1920 figures by more than 5 per cent. On the other hand, crop production per acre, based on an index of 100 for 1947-49, has climbed from a low of 59 in 1934 to a high of 106 in 1948, and has since been stabilized on a high plane.

It took more than mirrors to effect this piece of magic, for not only was the amount of land in use being held stable, but the manpower to work it has been in a steady decline. Eleven million persons were employed in farming in 1940 when the population of the United States was 132 million. By 1955 the population had passed 165 million, but there were fewer than 8½ million people at work in the barns and fields. The farmer whose production supported 11 people at home and abroad in 1940, found himself feeding 18½ persons last year.

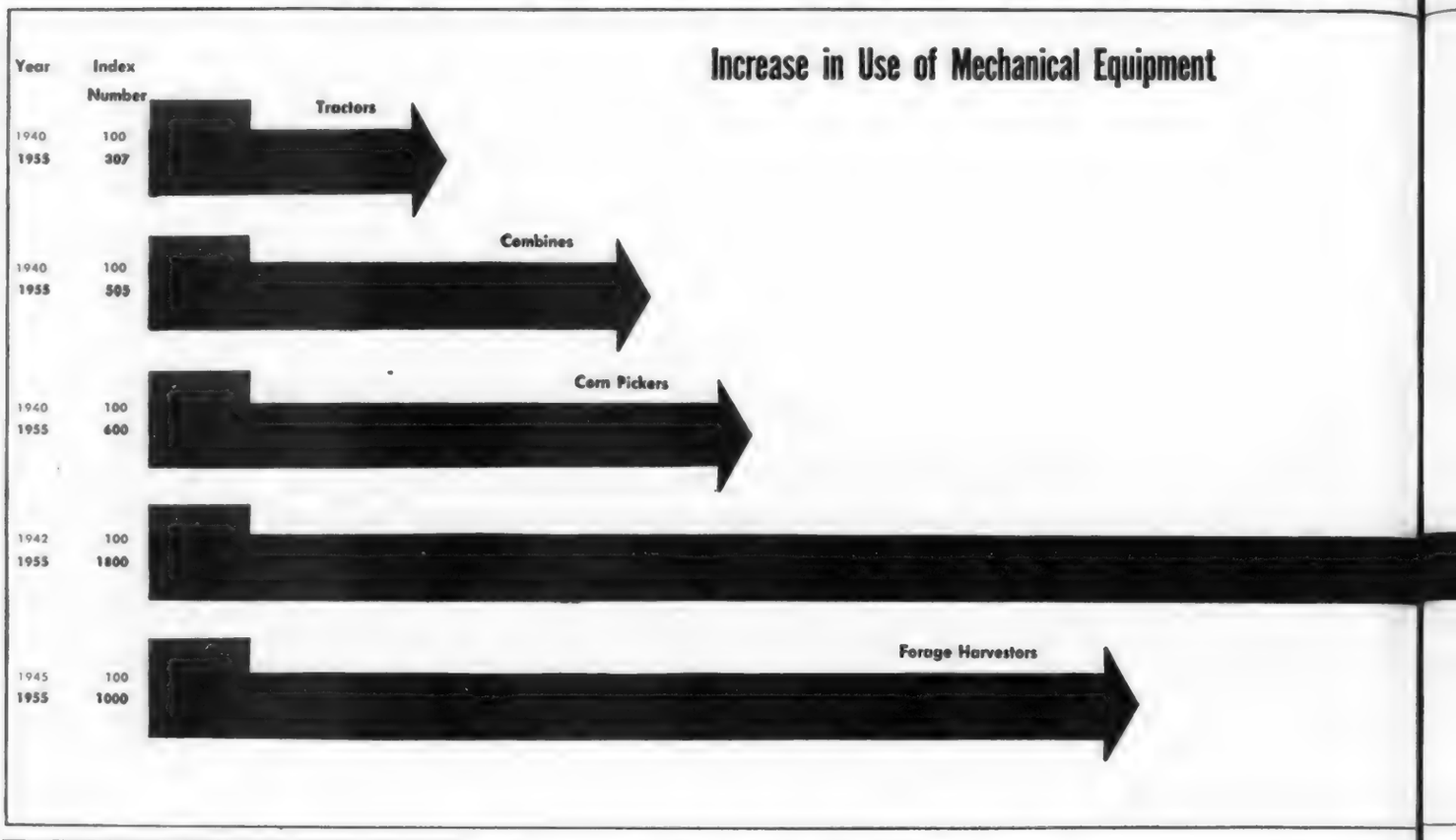
Machinery, fertilizer, improved crop varieties and other results of research were the chief spark plugs of this revolution.

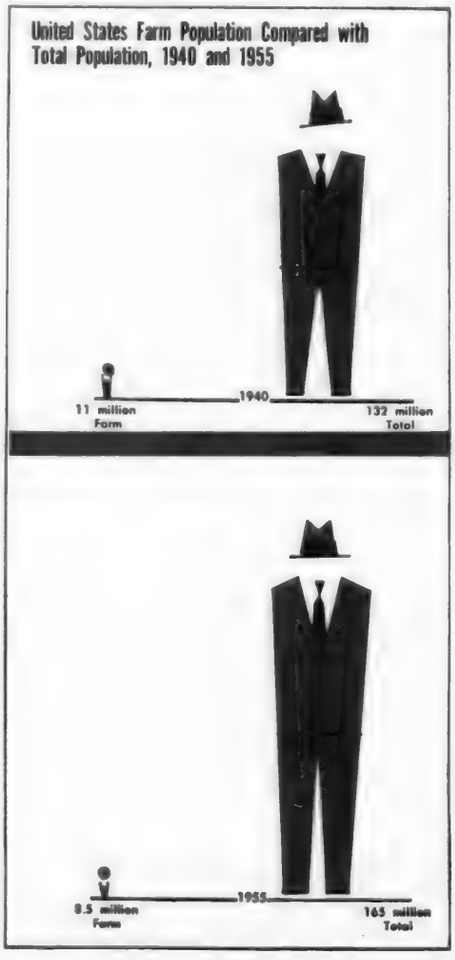
Back in the early 40's "there was a war on." Anything that stood in the way of the production of arms and munitions suffered the sad fate of the peanut on the railroad track. So, despite the fact that the know-how was at hand for the output of bigger and better farm tractors and implements and for the processing of commercial fertilizers on a vast scale, farmers had to be content with whatever equipment they had at hand. Fertilizer was severely limited and legumes were the principal source of nitrogen. The raising of draft horses was still a profitable business.

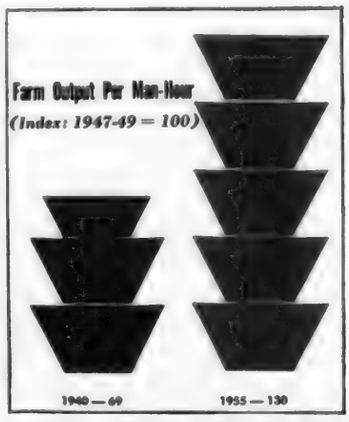
The end of the war changed this picture decisively and swiftly. The 1½ million tractors on farms in 1940 had increased to

(Text continued on page 86)

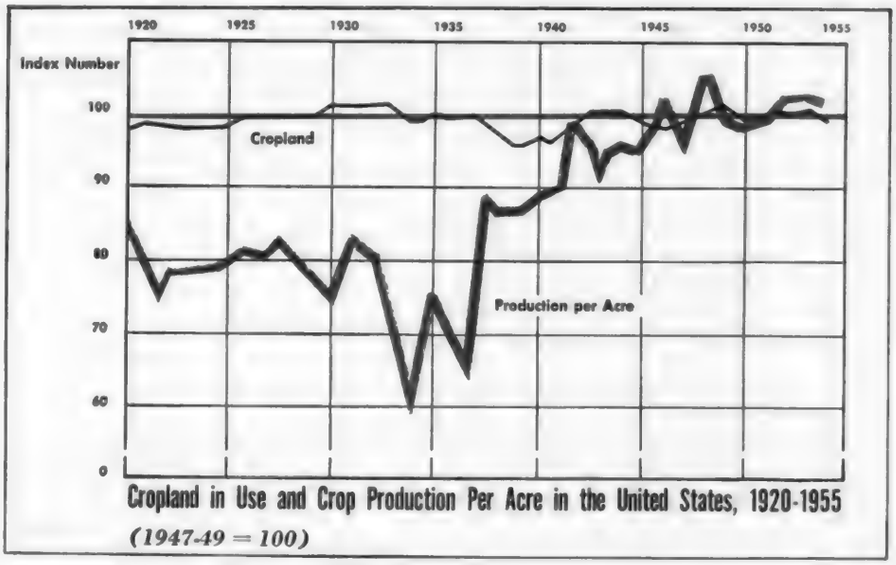
This is the Revolution in



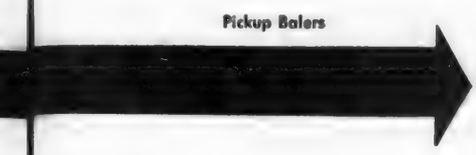


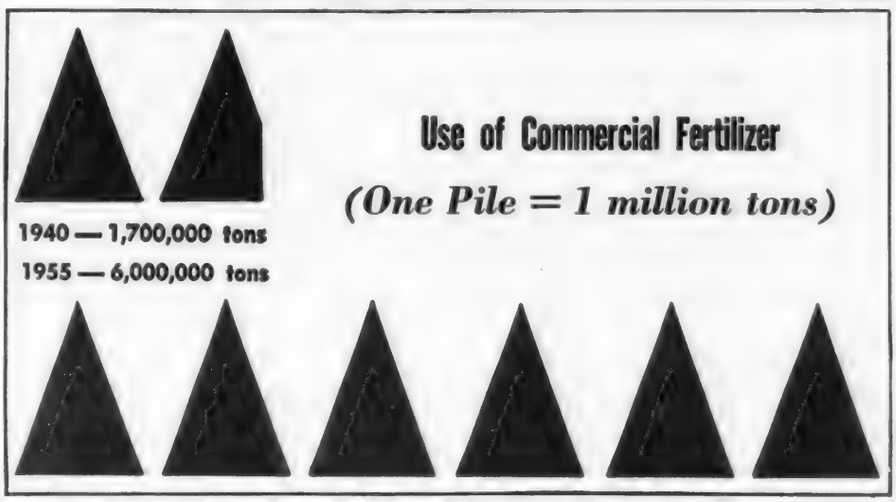


Farming



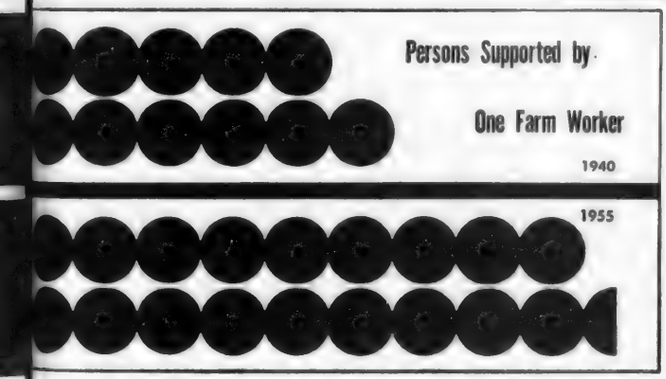
Cropland in Use and Crop Production Per Acre in the United States, 1920-1955
(1947-49 = 100)



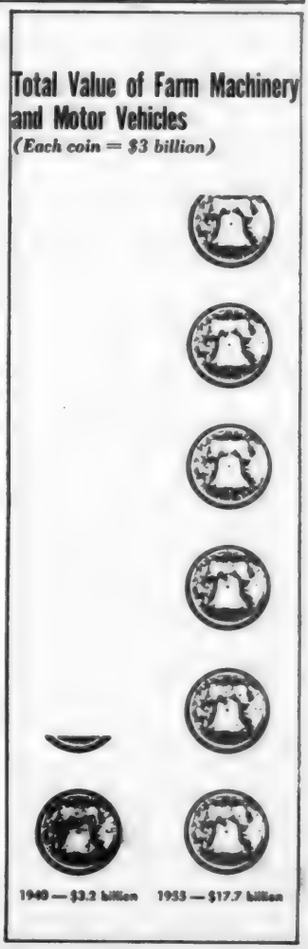


Use of Commercial Fertilizer

(One Pile = 1 million tons)



A declining number of farmers have used increasing amounts of capital and equipment to hit higher production records



By R. J. McGinnis

WE CAN REMEMBER, not too long ago, when a cow was regarded as an odd sort of animal because she has several extra stomachs, eats her food twice, and busts a lot of fences trying to get at the greener grass on the other side. Lately we've put a good deal of attention on the cow, especially the inside. We know how she makes milk and how she lets it down, and we know those extra stomachs have a very practical place in her physiology.

But we have neglected the cow as a person, writing her off as a pretty dumb beast. We could not be farther from the truth. The cow is a smart animal, some say smarter than a horse; and she would make a good house pet if it weren't for her size. And a cow has feelings, too. She'll bawl for days and nights, all day and all night long, when her calf is taken from her, and she'll put up a pretty good fight to protect her young. She has got a reputation for being dumb and unfeeling partly because she just doesn't give a damn. A horse or a dog will toady to man and try to please him, but a cow has pride, and wouldn't think of pleasing anybody but herself.

Men and cows have been closely associated since the dawn of civilization, and it is not to man's credit that the cows probably know more about men than men know about cows. Instead of learning a cow's habits and working with her, the man usually becomes frustrated, loses his temper, and busts her over the head with a pick handle. Take the Quaker gentleman who was milking his cow. First, the cow got her foot in the bucket; then she wrapped her tail, well covered with manure, around his face; then she got her foot in the pail again. This was the limit for the Quaker gentleman. He got up slowly from his stool, stood off, and delivered himself of this considered ultimatum: "Being a man of God, I can not curse thee; being a Quaker, I can not strike thee, but if thee step into my bucket once more, I shall sell thee to a Baptist, who will beat the hell out of thee!"

A cow is a placid animal and her placidity is often mistaken for stupidity. She's well-satisfied with herself, and rarely seeks to better her position. In this she is very unlike the horse or the dog, both with better reputations for intelligence. Both horses and dogs are perpetually insecure, and they show it. That is why we know more about them, and that is why we think they are more intelligent. They make us feel superior—a cow actually believes she is just as good or better than anybody and she sees no reason why she should lick anybody's boots, least of all a human being's. She has achieved a pretty happy niche in this world and is among the few contented animals. In this she is like the cat, which is probably superior, even to man, in intelligence. You can breed a lot of things into a cow, like milk production, but you can't breed very much out of her. She's stubborn that way.

The Hindus, who are smart people, have the cow sized up about right. In India the cow is sacred, and for a very good reason. She represents to them the acme of motherhood; she is a symbol of fertility, and she is a peace-loving creature. A good many myths and superstitions have accumulated around the cow, probably because she has always been on close terms with the family, feeding her own and human young. A cow gets quite homesick and some people believe that if she is fed a bunch of her own hair, she will forget her old home. If you cut off a piece of her tail she will never stray away. A cow born or weaned in the waning of the moon will never be a good breeder. To prevent a cow from mourning when her calf is taken from her, draw it away backwards.

Six Meals A Day

So much for the more spiritual aspects of the cow. To get down to her day-by-day habits, from which we can glean profits and satisfaction as well as lay the foundations for a more amicable relationship, let us observe her eating habits.

Cows on pasture (and when cows are on pasture their eating habits are as nature intended them) will eat six meals a day. To be exact, they have six feeding periods every twenty-four hours. Four of

these periods come during the daylight hours, two during the night. In summer and during the tail end of spring and the fore part of fall daylight meal times come at 5:30 a. m., 10:00 a. m., 1:00 p. m., and 6:00 p. m. At night they will have a meal between 9:30 and 11:00 p. m. and another between 1:00 and 3:30 a. m. Milking may interfere with this schedule, which is not a good thing, although a cow is adaptable, and smart enough to make exceptions. If flies are bad and the weather is too hot, the cow may vary her own schedule to suit her comfort. Rain discourages her very little—she just turns her backside to windward and goes right on browsing.

Man often makes a mistake in trying to make his cow conform to his own eating habits. Most farmers get along well on three meals a day, but a cow is not built like a man, and her feed is quite different. Most of a cow's feed is bulky. She stows each mouthful away in her paunch in a half-chewed, loose condition. It is bulky and full of air; it doesn't take long for her to fill up, and the total nourishment in a paunch full of roughage is not at all high. After filling the paunch, she retires to a quiet, shady spot and does a more complete job of chewing. The second time around the roughage goes to a regular stomach for a complete working over. She can't possibly support her body weight and give her quota of milk on three paunches full of roughage—give her at least six.

This explains why farmers who use self-feeders, from which a cow can get a snack whenever she feels like it, get better production. It is important to see that the bunks are filled for the night feedings.

Cows are great creatures for comfort. When the weather is cold and wet and disagreeable, they like shelter. It is true that they will brave the elements to feed themselves, but if they can eat in comfort, they will eat more, and the more they eat the more milk they give.

Too many farmers bring their cows in for the evening milking and then turn them into a bare, dry lot for the night. This denies the cow the two night meals, and cuts down on her milk. A good idea is to have a good pasture lot near the barn for the night-time feeding. Or, in lieu of that, to provide some hay or silage to nibble on during the night.

A Heavy Drinker

While those who have studied the cow agree that she dines six times a day, there is considerable disagreement on the number of times she takes a drink. This seems to be more a matter of opportunity than necessity. Climate, too, is a factor—the cooling system of a cow requires more water on a hot day than on a cool winter day. If a cow has good, fresh water handy, she may drink as many as ten times a day, that is during twenty-four hours. If the water tank is out of comfortable reach, she may drink only four times a day, or once or twice. On the western ranges a drink may involve considerable cross-country hiking; a cow may not care to make the effort more than once a day, or once every two days.

An Ontario farmer who was a close student of his cows reports that he turned his herd out twice a day in winter to go over a hill for water. Some of them, he said, would make the two trips, but many preferred to remain thirsty rather than make the unpleasant trip twice.

This was costing the man money, for milk production is directly connected with how much water the cow takes aboard. He would have been dollars (Canadian) ahead had he piped water to his barn.

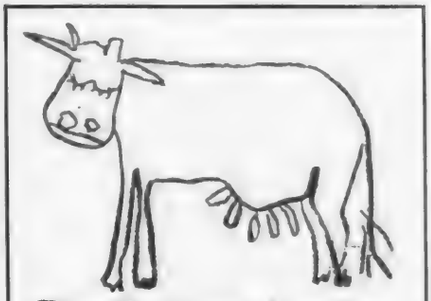
It appears sound common sense to provide water within easy reach at all times so that all the cows can take a sip whenever they feel like it. The results will be reflected in the milk pail.

The English, and particularly the Scotch, are very keen on making a cow pay her own way. They've even gone so far as to have a workman follow a cow around all day with a stopwatch, counting her bites. From this they have drawn some loose deductions: That a cow with a low bite-per-minute record is likely to be a poor producer. Some cows, they found, take only fifteen bites per minute; top cows will go as high as sixty bites per minute. A cow takes several bites, collecting a wad in her mouth, which she swallows without appreciably slowing down her grazing. The Jersey, they find, scoops up fodder faster than any other breed—she has a longer and more prehensile tongue and can wrap it around more forage, quicker.

Sleep does not knit up the raveled sleeve of care for the cow, for she never really sleeps. Sleep, as man knows it, in which he closes his eyes and loses consciousness, is not for the cow. When she lies down, seemingly to sleep, her head is erect and she always knows what is going on. If you see a cow with her neck stretched out and her head on the ground, that's not a sleeping cow—that's a sick cow, or perhaps a dead cow.

The reason cows can't sleep is a simple one. The ruminants, of which the cow is a prominent member, spend much of their lying-down time in chewing the cud. To properly chew the cud, bring it up from the rumen, and reswallow it after it has been properly processed in the mouth, takes conscious effort, and even a cow can't sleep and think.

There's another reason why a cow can't stretch out and take her ease. The arrangement of the second, third, and fourth stomachs requires that the chest be in an upright position in order that all three stomachs and the rumen function properly in the digestive cycle. It's not a small job to keep four stomachs synchronized, and any lapse would probably give the most robust cow a case of indigestion. Everybody who has seen a cow has noted the intense concentration with which she chews her cud. She puts all she has into the business, and we ought not disturb her at such times.



The Owl and the Cow

The bird that I am going to write about is the owl. The owl cannot see at all by day and at night is as blind as a bat.

I do not know much about the owl, so I will go to the beast which I am going to choose. It is the cow. The cow is a mammal. It has six sides—right, left and upper and below. At the back it has a tail on which hangs a brush. With this it sends the flies away so that they do not fall into the milk.

The head is for the purpose of growing horns and so that the mouth can be somewhere. The horns are to butt with and the mouth is to moo with. Under the cow hangs the milk. It is arranged for milking. When the people milk, the milk comes and there is never an end to the supply. How the cow does it I have not realized, but it makes more and more. The cow has a fine sense of smell; one can smell it far away. This is the reason for the fresh air in the country.

The man cow is called an ox. It is not a mammal. The cow does not eat much, but what it eats it eats twice, so that it gets enough. When it is hungry it moos and when it says nothing it is because its inside is full up with grass.

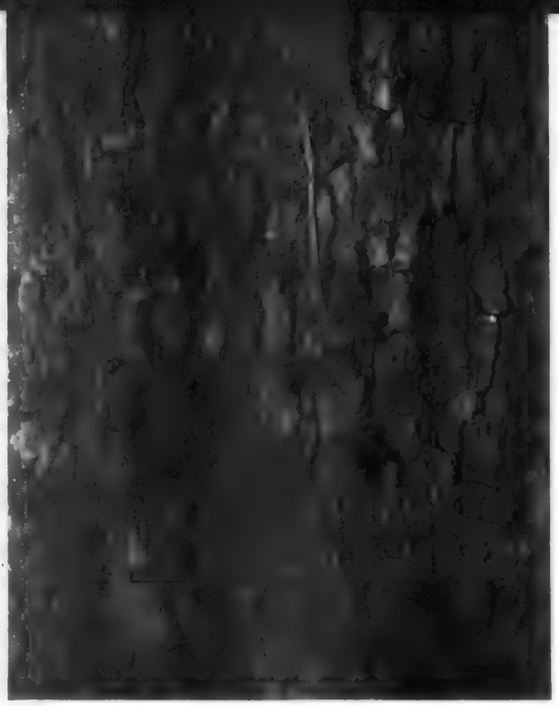
(Essay by an unidentified English school boy. From "Plain Words," by Sir Ernest Gowers.)

The Soft Couch

If everything is going all right and the cow is getting enough feed, and water is handy, and she's contented, a cow will spend half, or more than half her time lying down. This seems reasonable; a cow spends half her time taking in food, the other half processing it for digestion. No other domestic animal is so industrious.

A cow will spend half her time lying down even if she is in stanchions. If she is out on pasture she may take an extra hour. And since a cow is conscious when she is lying down, it is reasonable that she prefers to have a comfortable bed, and will do a better job of converting hay into milk if she is on a featherbed instead of cramped up in a narrow stanchion, with a concrete floor boring into her ribs. This is why farmers who have converted from stanchions to loose housing, or the new style comfort stalls, find the general health and milk production of their herds have improved. There seems to be, too, a direct correlation between the depth of the straw bedding to milk production. A cow on a soft mattress of straw, over some nice warm manure, will reasonably do a better job

(Continued on page 126)



- **plant them on poor ground**
- **protect them from fire and livestock**
- **collect future dividends**

DIBBLE BAR IN HAND, Dean Carter was working his way through the patch of woods across the road from his house spotting white pine seedlings wherever the stand was thin. The early November day was perfect for such a project. The North Carolina mountain sides were in their glory, the reds and golds and yellows and browns of the hardwoods blending richly with the greens of the pines to produce an effect like some huge Persian rug thrown across the landscape. Carter was unaware of the observer following him, a bent old Negro whose frame was supported by a tripod of two legs and a hickory stick. But eventually the old man's curiosity got the better of him and he startled the tree planter with a question.

"What yo'all doin', Mr. Carter?"

"I'm planting pine, Bill."

"What's that? You're doin' what, Mr. Carter?"

"Planting pine. These are white pine seedlings."

"You're plantin' pine trees? Glory be! Who ever heard of such a thing? Why, Mr. Carter, it'll be doomsday 'fore they ever amount to nothin'."

Just a few weeks ago, 6 years after the above episode and still apparently a long time from doomsday, Dean Carter was showing a visiting forester through the same woodlot. Most of his seedlings are now 8 to 10 feet tall and growing like weeds. Within another 10 years they will be pulpwood size and ready to return a cash income with their first thinning.

While tree farming has attracted the interest of increasing numbers of farmers ever since the days of the CCC plantings in the mid-30's, the soil bank provisions of the new farm law are giving it even more prominence. And the value of trees as a weapon in erosion control is a point which needs no elaboration. Still, there continues in the minds of many farmers the thought that as an investment trees are in about the same category as a life insurance policy. You can never collect until you die, or at least until you're too old to enjoy the proceeds.

Carter's experience flatly refutes this idea. "Whenever I need a little cash, I turn to the woods," he says. "We've been on this place seven years and during that time we've clean cut about 10 acres of woods and put them back into pasture. One fall when we were needing a little money I bought myself a chain saw, figuring I'd cut enough timber to get what I needed and then I'd sell the saw. But that saw paid for itself so quick I just decided to keep it.

"During the seven years we've been here we've not only sold a lot of saw timber and pulpwood, but we've built a 48x24-foot barn and a 40x40-foot chicken house out of our own timber. We're getting ready now to build a new home and I figure these 64 pines right behind the old house ought to give us a good start on it. Those trees are about 34 years old and I've had a forester tell me there are around 12,000 board foot of lumber in them."

While Dean Carter's timber management is exceptional, he is typical of the farmer who makes a shrewd appraisal of his holdings and sets aside his roughest acres in timber. Thousands of farmers will be thinking of following his example this fall and next spring. They will be asking a lot of questions about planting, managing, and marketing timber crops.

Planting Sites

Starting literally on the ground floor, the first consideration is the site and its preparation. Trees, the saying is, will grow anywhere, or almost anywhere, so the chief question in deciding where to put a new stand is primarily economic—which acres are the poorest producers of crops and forage or are too steep for efficient farming? It is up to the individual operator to answer that one.

Next comes the matter of site preparation. Unless the ground is covered with a heavy sod, no preparation at all is necessary. But a man who plants his seedlings in a heavy bluegrass sod might well experience a 100 per cent failure. Not only does the grass furnish heavy competition for moisture, nutrients, and light, but it is a favorite haunt of field mice and grub worms, both of which list young seedlings among their choicest items of diet during the winter. So the rule is to plow out a furrow in which to plant the seedlings when the site is in heavy sod.

When to plant depends largely on the area. Fall is the more acceptable time down in Dean Carter's territory around western North Carolina, and on south. In Ohio, Indiana, and other parts of the Midwest, spring is better because of better moisture conditions and absence of frost heaval. Best advice on this matter can be obtained from the state foresters or the nurseries which supply the seedlings.

Listed below are the main sources of foresty information:

The Forest Service of the U. S. Department of Agriculture with its ten regional offices scattered through the country and in Alaska.

The State Extension Foresters in each state.

The Tennessee Valley Authority (for those situated in the TVA region).

Local lumber and pulpwood mills.

What to Plant

What to plant is another point which is entirely a local matter. Two good guides to follow are (1) plant only those species which are most common to the region; (2) plant only those species which have the highest economic value either on the

market or for home use. As one forester puts it, "No matter how much you may like trees, you can't afford to go around landscaping the countryside. You can't separate the tree from the site." In specific terms this means: Grow white pine in the southern highlands, slash pine on the coastal plains, loblolly in the Piedmont and the coastal plains, yellow poplar, white oak, ash, black locust on good upland sites in the Midwest, black walnut in the bottomlands, and so on. Again, when in doubt, an inquiry to one of the sources of information listed above will bring an authoritative answer. The chart on page 41 gives a rough guide to the kinds of trees best adapted to the various soil types.

Pointing up the economics of adapting trees to site, Joe Ennis, Division Forester for the Carolina Division of the Champion Paper and Fiber Company, tells of a spot on the coastal plains where loblolly and short leaf pine were planted side by side. In 15 years the loblolly were 15 feet higher than the short leaf and produced 6 to 8 cords of pulpwood per acre on the first thinning as against nothing for the short leaf.

Had this planting been made in the highlands the result might have been just the reverse, with the short leaf showing up the loblolly. Which shows why it is futile to ask "Which is the fastest growing tree?" The tree and the site are a team. The tree that will thrive in one location may be a dud in another.

Farmers in some sections are finding pecans and other nut trees quite profitable. A good pecan tree will grow to maturity in 5 to 6 years and begin to return some cash. Christmas trees, Scotch pine or balsam fir, are money makers, too. But Christmas trees are another story and newcomers would do well to look twice before jumping into this game. Those who know the Christmas tree market warn that a sudden influx of new growers would be very apt to produce surpluses which would make the business most unprofitable. Congress seems in no mood to vote support, either flexible or rigid, for Christmas trees.

Where to Get Seedlings

Seedlings can be bought from any of the hundreds of privately owned nurseries throughout the country (a card addressed to the American Association of Nurserymen, Inc., 635 Southern Bldg., Washington, D. C., will bring a list of nurseries in your area), or from state nurseries. The T.V.A. nursery at Clinton, Tennessee, furnishes seedlings free of charge to farmers in the T.V.A. area and many of the pulpwood mills and larger lumber companies also supply seedlings without charge to farmers. The 27 pulpmill companies, for example, which are members of the Southern Pulpwood Conservation Association, last year donated 46 million seedlings to landowners.

The inauguration of the soil bank program will undoubtedly increase the demands for seedlings, so farmers who intend to plant trees this fall or next spring would do well to act immediately in placing their orders.

Purchased seedlings cost $5.50 to $15 per thousand, depending on the species and size. Graded seedlings of better height and quality are well worth the slight additional charge.

The question of how many trees to plant per acre will bring a variety of estimates. The most commonly quoted figure is 1000 trees per acre. With such a population the seedlings are set out 6 feet apart in the rows with 7 feet between rows. A 7 by 7 planting will give 890 trees per acre; and an 8 by 8 setting, which is looked upon favorably by many experienced woodsmen, requires 670 trees per acre. The idea is to space the trees so the first thinning operation will be an economic one, that is, so the culls can be sold for pulpwood. If the trees are planted too closely, they will have to be thinned to prevent stagnation before reaching pulpwood size.

In some areas tractor-drawn tree planters can be rented or borrowed from conservation agencies. Some banks in regions where reforestation has become popular now own tree planters which they rent to farmers. With a planter on good terrain it is possible to plant 1200 seedlings an hour.

Planting by hand, one man will be doing a good day's work to set 700 trees. The job is simply a matter of sticking a ditching spade or dibble bar in the ground, pushing the spade forward, dropping in the seedling, putting the spade behind the seedling and pushing the dirt forward and finally stamping the dirt with the heel to pack the soil around the roots.

At current prices for seedlings and labor a farmer will have an investment of $18 to $25 in an acre of planted trees.

While most foresters are of the opinion that fertilizing a plantation of seedlings is hardly worth the expense and effort, experiments currently in progress at several spots throughout the country seem to indicate that aerial application of fertilizers, particularly nitrogen, on established stands may soon be a rather common practice.

A well managed 20-acre woodlot will provide most farmers with all the timber they need for home use. A stack like this would leave a large dent in any man's pocketbook if he had to buy it. The quality lumber brings a good price.

In many regions the demand for pulpwood makes thinning the stand a very profitable operation. The farmer gets an immediate cash return at the same time he enhances the future value of his timberland. Pulpwood can be cut during the slack season.

Valuable growth increases have resulted from these experimental applications.

From Infancy to Maturity

After the seedlings have been planted, very little management is required until time for the first thinning, usually some 15 years later. But there are two absolutely essential precautions that must be observed with every timber tract—protection from fire and protection from livestock.

Fire protection in large holdings demands the maintenance of fire lanes through the woods and along highways and the strategic placement of fire-fighting equipment. For smaller woods, it is mainly a matter of keeping grass and brush fires from spreading to the timbered acres. Fields adjacent to the woods should never be burned when the wind is blowing toward the timber.

Livestock are as fatal to a healthy stand of trees as is fire. They delight in browsing on the tender shoots and seem instinctively to work on the most valuable stands first. Fencing out livestock is a must in the management battle.

Tax Relief

A point for every woodlot and forest owner to check is the tax relief to which he may be entitled on his woodlands. In some states, Ohio, for example, both the timber and the land on which it stands are taxed at only 50 per cent of the local tax rate. In Maine, the timber and the land are exempt from taxation for 20 years after planting, while in South Dakota the county pays a bounty of $5 per acre per year up to a maximum of 10 acres of woodland for any one owner. In order to obtain this tax relief it is required in most states that the owner protect the stand from fire and livestock. Some states even stipulate the minimum type of fence that will satisfy the requirement for protection from grazing.

The Agricultural Conservation Program also offers financial help to the woods owner. In regions where reforestation, erosion control, or watershed protection is considered particularly important, the farmer can get $1.60 per 100 trees for planting. Besides this, for woodland improvement in established stands, he may also be eligible for assistance equal to 50 per cent of the cost for thinning young stands and removing decadent, over-topping or unmerchantable trees; 50 per cent of the cost of cutting or poisoning grapevines or undesirable trees; and $1 per rod for fencing to exclude livestock. The county ASC committee has the last word in determining eligibility for these payments.

Insects and Diseases

With trees as with any other organism, prevention is the best cure for disease. The best way to fight diseases and insects is to keep the stand in a thrifty, growing condition by careful thinning. On the edge of Asheville, North Carolina, for example, is the Biltmore Estate, which encloses one of the oldest white pine plantations in the United States. Through a section of this forest surveys were made a few months ago for a new highway. The survey party cut bushes and trees to clear sight lines for their operations; the bark beetles went to work on the injured material and soon sections of the adjacent woods were infested with the beetles. Such an infestation can get started at any time during the spring or summer when a tree is damaged.

The best defense against such a situation is to cart the salvageable timber to a pulp or saw mill, warning the mill of the condition. Then burn the unsalvageable material, and spray the stand with benzene hexachloride, using a ½ per cent water solution on live trees, a 1 per cent oil solution on down trees.

If cutting is carried on through the summer, the work should progress around a central location so the beetles will be supplied fresh material and will not attack the standing trees.

Oak wilt is a particularly damaging disease in red, black, and white oak. Symptoms are the curling and loss of color of older leaves in the crown and a gradual shedding of the leaves. In a year or two the trees are dead. Sometimes the infection can be checked by severing the root connections between diseased and healthy trees. All the bark from the diseased trees should be burned.

Chestnut blight has completely destroyed once thriving stands of chestnuts in sections of the southeast. Unfortunately there is no control for this scourge.

Vines are a serious pest in some sections. They cut off the light and use up needed moisture. Painting them close to the base with 2,4,5-T is more effective than cutting as they tend to sprout after cutting.

This catalog of ills could be extended indefinitely and would probably serve only to make a sylvan hypochondriac out of the woods owner. As noted above, most stands grow to maturity with no serious trouble. When trouble does occur, recourse for advice and assistance can always be made to the state forester or one of the agencies mentioned.

Unless the ground is covered with a heavy sod, no site preparation is necessary for planting seedlings. It is simply a matter of selecting the best spot and planting the trees at the proper spacing. An 8 by 8 setting will give 670 trees per acre; 6 by 7 spacing gives 1000 trees per acre. These are the extremes of the generally recommended planting rates.

The Nantucket pine tip moth is another rather common insect pest. This one specializes in loblolly and shortleaf pine. It stunts and deforms trees by killing the buds and twigs of young stock. Seedlings can be protected from this predator by dipping them in a 1 per cent white oil emulsion. Infected trees should be sprayed during moth emergence with 1 per cent DDT in emulsion or water suspension.

Cutting Sprouts

In pine stands it will be found profitable to cut hardwood sprouts that shade the young pines. Dean Carter has figured out the dollar and cents angle on this practice. About 100 of his 6-year-old white pines were being topped by hardwood sprouts.

Fitting The Tree To The Soil

Soil Type	Moist-Heavy	Well drained-heavy	Heavy Loam	Light Loam	Sand
Trees	White ash	Sugar maple	Black walnut	White pine	Scotch pine
	Red oak	White ash	Tulip poplar	Red pine	Red pine
	White elm	Red oak	Basswood	Scotch pine	Pitch pine
	Cottonwood	Norway spruce	White oak	Black locust	Jack pine
	Sweet gum	Austrian pine	Red oak	Shortleaf pine	Shortleaf pine
	Swamp white oak	European larch	Black oak	Pitch pine	
	Arborvitae	Arborvitae	White ash	Black oak	
		Beech	Norway spruce		
		Basswood	Catalpa		
		White oak			
		Hemlock			

Reluctant to expend the time and money necessary to clean up the stand, he applied a little arithmetic to the problem. He figured that it would cost no more than $10 to do the job. The trees should reach saw-timber size in about 40 years, at which time they each should yield some 500 board feet of timber. At current prices of $40 per thousand—and 40 more years of inflation may make that price look picayunish—the 100 trees will be worth $2000, a pretty fair return from a $10 investment. Even at 6 per cent compound interest, $10 will grow to only $102.86 in 40 years in a savings account.

Culling and Thinning

Culling and thinning is a highly profitable operation, too, particularly in sections where the culled trees can be sold for pulpwood. And since the rather recent introduction of techniques for making pulp from hardwoods, those opportunities are increasing. The Biltmore forests are a good demonstration of the economics of thinning. There can be seen adjacent stands of pine planted around the turn of the century. One of these stands has been left untouched. Its neighbor has been thinned 6 times since 1916, yielding 5 cords of wood per acre at each thinning. Today it is estimated that the stumpage value of the unthinned stand (stumpage value is the price at which the standing timber could be sold to a sawyer who would cut and haul it at his expense) is $400 an acre compared to an estimated value of $600 an acre for the thinned stand.

In culling, the trees to cut are weed trees—the undesirable species which will have little or no future value—badly formed young trees and older trees which are showing a lowered vitality by dead limbs in the crown and unhealed wounds.

A chain saw comes in mighty handy, and speeds up the job so the farmer can get back to his other chores.

In areas where there are as yet no well-developed pulp markets, it is usually recommended that the culls simply be girdled and poisoned and allowed to lay where they eventually fall. The precautions mentioned earlier relative to the pine beetle can be ignored in northern stands.

Marketing

Usually an owner either underestimates the value of his property and lets it go for a fraction of its worth, or he has a highly exaggerated idea of what he should get for it. Here is one more time when the forester can be the farmer's best friend. He can advise him as to current market prices for pulpwood and saw timber, put him in touch with reliable buyers, help him estimate his yield, and advise him in drawing up a sale contract.

The farmer who has the time, equipment and ability to cut his own timber is in a much better position to capitalize on his investment than the man who has to sell it to an outside operator. He is able to use his labor profitably during the slack season and will take greater care in felling the trees and getting them out of the woods with a minimum of damage to the younger, immature trees.

Clear cutting—cutting all the useable trees from an area—is never recommended unless the intention is to take the area permanently out of timber.

One of the important uses of a farm woods is to furnish timber for home use. But, frequently, if the farmer has a particularly valuable species of trees, he would do well to market his timber or trade it for less valuable kinds which will serve his purpose just as well. It would be ridiculous to use walnut or knotty pine worth well over $100 a thousand to build a barn when less valuable woods were available.

But a man should know what he is doing when he starts trading. There was the case of the Indiana farm woman who was remodeling her house and needed some beams to reinforce the first floor.

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Give the roots plenty of room when planting. One stroke of the mattock will make the hole; the seedling is dropped in and the ground is then firmed.

Tennessee Vittles

By Virgil Lane

MOTHERS NOWADAYS complain a good deal about the trouble they have getting children to eat. I've even read articles on the subject. As I remember things back in Tennessee in the early teens of this century, the big thing was to keep kids *from* eating the family into the poorhouse. Was the food better then? Was it the ingredients, or was it the cooking?

I can remember the happy days when breakfast was a meal and not just a hurdle on the way to work. Fully dressed and ready to start the day, the whole family sat down together. Papa asked the blessing. It was short, because Papa said the Lord meant hot food to be eaten hot.

We had fruit to begin with. Not orange juice. Orange juice came with castor oil. We had blackberries or dewberries or strawberries. The berries were washed and sugared the night before and by morning there were tiny crusts of sugar crystals clinging around the edges of the top layer. With the fruit there was cream that flowed lazily out of the blue willow pitcher.

In full summer we had "muskmelons" and it was a long time before I heard they were cantaloupes. Mama always dusted them with sugar, but that was a secret from Papa. "Salt," he would say, waving the pink hand-painted shaker, "salt and pepper is all a melon needs when I pick it out." And Mama said, "Yes, dear, you always pick good melons." Mama explained to us, "What Papa doesn't know won't hurt him."

In the winter we might have prunes. That sounds boardinghousey but Mama stewed them way down with lemon juice and sugar. The yellow cream curled through the amber juice. Good, rich cream makes a king's dish out of the lowly prune.

Then came oatmeal, cooked all night in the fireless cooker. And after that came the real breakfast. Pinky-brown slices of cured ham that almost floated in red-eye gravy. And little crisp biscuits, made with sour milk and soda. Mama wouldn't put up with thick biscuits with a mattress in the middle, nor with baking-powder biscuits.

Of course, we had grits with the ham, and the gravy from the platter was spooned onto them. The little kids were allowed to put open biscuits into the platter to sop up the last of the gravy; you couldn't do that after you were six years old.

Sometimes there was bacon with a mound of soft scrambled eggs, and in winter there would be country sausage made of lean meat and seasoned with sage and red pepper. That pepper never saw a can. It would have melted a can. It was ground-up pods of long-nosed red peppers, home-grown and dried, and it made all other sausage taste sissy.

I guess that's about all we had for breakfast, but dinner was at 12 o'clock noon. Everybody ate at home, and there was a noonday hush over the whole community, probably over all Tennessee, as people sat down to enjoy themselves.

For just an ordinary day we might have round steak. It was cut thin and had flour beaten into it with the edge of a cracked saucer. Mama got the grease sizzling hot in the heavy iron skillets and then trailed the limp floury slabs into it. When the meat was brown on both sides she put lids on the skillets and let it cook another ten minutes or so. Then she made the gravy. All the fried crackling bits that stuck to the bottom of the skillet floated up into the rich milk and flour, and the whole thing got an extra dousing of salt and pepper. It was cooked until it made a sulky "plop, plop," sound.

There would be mashed potatoes as background for the gravy. In summer there would be black-eyed peas cooked with salt-pork and a pod of red pepper. Okra, of course, and I mean okra. Not some fancy combination concocted to shame a noble vegetable. Little pods of okra cooked quickly in boiling salted water, served with butter, need nothing but an open mind and an open mouth. There was always a platter of sliced tomatoes in the summer. Big red slices, the color of Christmas. And fried corn; corn cut from the cob and fried in bacon drippings till a brown crust formed over the bottom of the pan. Cream and lots of salt and pepper were added, too.

None of Mama's vegetables tasted like the vegetables of today. Take greens. We liked Mama's greens, especially turnip greens. The crisp leaves were brought straight out of the garden, washed and placed in a big iron pot with a hock of ham. The pot was placed on the back of the stove and allowed to simmer until the greens were tender, and each impregnated with the heavenly flavor of the ham. Green beans, too, were a far cry from the dessicated, tasteless mess one buys in cans now. These, too, were cooked with a piece of ham, and had a little sugar and vinegar added to enhance the natural flavor. Perhaps the fact that everything came soon and fresh out of the garden, before it had a chance to wilt or lose its flavor, accounted for the flavors that have disappeared forever under the present methods of vegetable marketing. How can spinach, picked in Arizona and cooked in New York a week later, have any flavor?

The same is true of corn on the cob. When we had corn on the cob, we had nothing else—we made a meal of it. Mama always said corn was like fish, you had to pop it into the pot before it stopped wiggling, or the flavor was lost. It took about six big ears of Country Gentleman to do a person.

We had all kinds of desserts. But the thing I remember best was a kind of calendar of cobblers. First came the dewberries, then the blackberries; then there was a triumphant pause for strawberry shortcake. Then came the peach cobblers.

You could smell a peach cobbler all through dinner, and when Mama opened the oven door to take it out, all heaven opened up for you. Cobblers came to the table in long black pans and were put in front of Papa on two asbestos mats. The juice bubbled and oozed through the design in the brown crust. Mama made a very artistic design like a fern frond with the end of a spoon.

Well, that was dinner. After that we raced back to school. Maybe we worked off the excess calories that way.

Kids always have a sweet tooth and the main part of the meal was something you had to endure in order to get to the dessert. Mama knew this and she tried to make the meat and the vegetables so tasty that we'd like those too. Nevertheless we always had one eye on the sideboard where the dessert dishes were stacked. She had special dishes for berries and during the strawberry season we knew what to expect—shortcake made with biscuit dough, or the berries covered with powdered sugar and floating in golden cream.

And we came home after school half starved. We could always have tea cookies, big thin cookies that spilled sugar off the top. Mama made them by the thousands. Then there was a little barrel of gingersnaps on a shelf in the kitchen. They were good if you dunked them in milk and ate them with the crispness going but not quite gone.

Supper came about half past five. It was mostly dinner over again. Warmed up, I mean. There would be one new dish added. It might be baked macaroni and cheese. Sharp, crumbly rattrap cheese covered the top of the big black pan and ran down through the delicate custard. It came to the table hissing and bubbling and just right. Hash, too, was a supper dish. Pure hash, undefiled, has nothing in it but beef, potatoes, onions and gravy. Hash is an accomplishment, not a catchall.

Another supper dish was chicken pie. It had no discernible relationship to the individual casserole, one biscuit, one teaspoon of chicken and a cup of tired green peas, that is served under that name in tea shoppes. Our chicken pie was made from two hens cut up and cooked till the meat fell from the bones. Then the meat was covered with gravy and chopped hard-boiled eggs. In the middle of the pan went a teacup, upside down. Over all this went a short, thin, biscuit-dough crust. The cup, by some mysterious process, gathered the gravy under it so that the crust was never soggy. When Papa cut through the crust, he lifted the edge of the cup and a great gush of gravy was released just at the right moment. Of course, we always had ham—boiled ham, never baked. A good one was at least three years old and weighed around 17 pounds. It was hickory smoked and well spiced.

First, you soaked it overnight in warm water. Then you put it in a washboiler surrounded by sweet smelling hay (don't ask me why) and covered it with water, tossing in a handful of mixed spices, three or four little red-pepper pods, some brown sugar and molasses. Then you let it boil on the back of the stove till you could stick a fork to the bone. It was cooled in its own juice. When the ham was cold, it was sliced with a knife as sharp as a razor. It was supposed to last for a long time, but it never did.

No, it wasn't any trouble to get us to eat. And what we had was just regular fare. I know, because I grew up in the golden age of "spend the night." Meals were the same all over.

It's my opinion, the meals were better then. And it wasn't the ingredients—we can still get the same things. It was Mama that made the difference. Mama had a skill, accumulated by generations of good cooks, that lots of people lack now, and a great pride in setting a good table.

Production and Growth, though Stresses, make Poultry Profit if all other Stresses in the Coop are Minimized

By Robert B. Wallace

The boss hen pecks all others, but none dares peck back. There is a next-to-boss and a next-to-next-to-boss and on to the timid biddy that pecks none. While they decide who's who every hen gets pecked an average of once a minute.

EVERY HEN has her breaking point. A hard knock here, a set back there, a strain here, and a disease there. Finally she can't take any more strain or stress and she breaks down.

What did it? The hard knocks? The set back? The strain? Or was it the disease? All of these might be called stress factors. Not one of them by itself would have broken her. Each played a part.

How much stress load can a hen take before breaking? Let's take one hen and put her under the stress of full production. This is a heavy strain, but if that is all she has to carry, she'll keep right on singing. Now, add some worms and lice. The worms rob her of food and the lice keep her from sleeping well, but she still goes on with her job. Maybe she's a timid sort and there is only an average amount of feeder space. The bossier birds discourage her from eating all she wants. She still staggers on, but with this stress load any new stress—even a little one—now breaks her. A cold snap, for example, could easily be the last straw for this overburdened bird. She sneezes, stops laying, her comb shrivels. She is a cull.

The moral to all of this is that some stresses such as the cold snap are unavoidable while others, such as high production, are most desirable. A good poultryman not only recognizes all stresses for what they are, but holds needless stress to a minimum. So, the first *must* in good laying flock management is to know and recognize the stresses.

Space and Competition

Two of the most important and most common stresses are inadequate feeder and water space. If there is less than six inches of feeder space per hen, whether using regular or automatic feeders, this is a stress. An eight-foot feeder has 16 feet of feeder space, figuring both sides, or enough space for 32 birds. If there is less than one waterer for each 100 birds (a waterer is a cup, fount, or four feet of trough space) or less than two waterers in pens holding from 100 to 200 birds, this, too, is a stress.

These two stresses are so important because in every flock there is a social order. It is called the pecking order. This is the way it is decided; hen A and hen B, meeting for the first time, square off and fight. A may be bigger than B or perhaps just more aggressive. A defeats B. From now on B always gives way to A and avoids a fight.

Sooner or later in the small flock every hen fights every other hen and learns whom she can peck and whom she had better dodge. Bird A at the top of the heap is boss hen and can shoo away any of the others. Bird B can chase all except A and bird C can lord it over every other hen except A and B, and so on down the line to Z at the bottom of the heap. Everybody pecks Z, she pecks no one. If there is plenty of feeder and water space, Z makes out all right. She lives as well and lays as well as the others. But if there isn't enough trough space poor old Z gets pecked aside, left out in the cold. Of course, if space were shorter still, then Y would be the next to suffer, then X, then W, and so on.

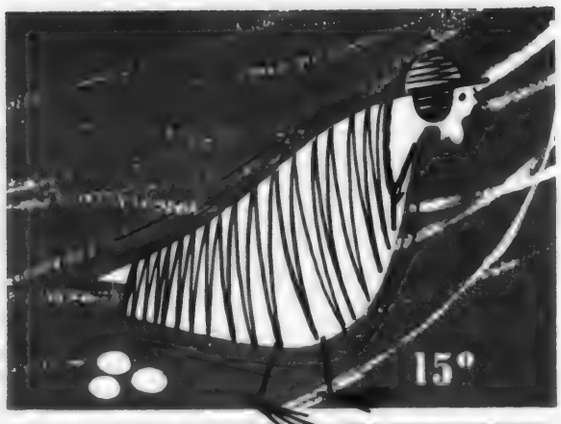
The poor poultryman lets competition thin the flock to the right number for the facilities he provides. The good poultryman puts out the right amount of feeder and water space for the flock he plans to house.

Surprisingly enough, experiments show that if each bird has enough feeding and watering space there is no significant difference in performance whether you allow 2, 3, 4, 5, or 6 square feet per bird. Where overcrowding brings bad results, the bad results come primarily from failure to increase feeder and water space. If you can avoid a litter problem with ventilation, you can actually get better performance allowing one square foot per bird together with six inches of feeder space and one waterer for each 100 birds than you can by allowing six square feet per bird with only three inches of feeder space and one waterer for each 200 birds!

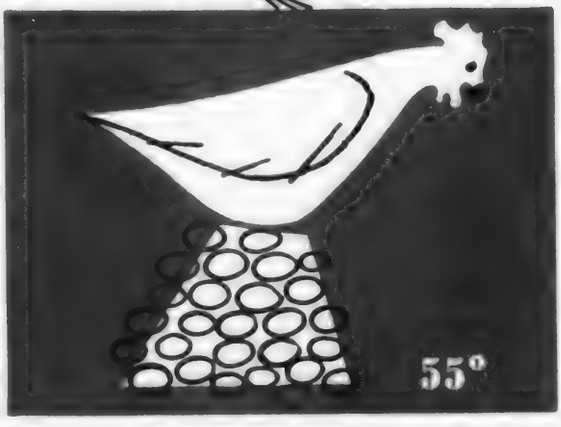
Why don't farmers give their hens the space they need?

Four poultrymen tell why they did not provide enough feeder or water space. One said, "If I put in any more feeders I wouldn't be able to move around in the pen." Another explained. "I always got by well enough before with no more waterers." A third objected, "You can't tell me I'm short of feeder space. Often there are scarcely any birds at the feeders." And a fourth said, "If I put in more feeders the feed will get stale before it's eaten."

These are all good common sense reasons, but they miss the main point—do extra feeders and waterers pay off? Common sense objections to the contrary, here is what we found on 553 flocks where feeder space was known and on 30 flocks where water space had been measured. Birds in coops having five inches of feeder space averaged seven eggs a year less per



Cold is a stress that can cut production. Insulation and deep litter help fight cold.



When coop temperature ranges from 45 to 75 degrees the hen does her best egg laying.

Ventilation, aluminum roofing, and thin litter help overcome the stress of summer heat.

bird than birds with six inches of feeder space; those with only four inches of space laid 16 eggs less; three inches of feeder space dropped production 25 eggs per bird; two inches of feeder space per bird lost 42 eggs; and birds with only one inch of feeder space per bird averaged 74 eggs less than the birds with adequate feeders.

The story was the same with waterers. Where the equivalent of 5 waterers for 500 birds were used, each bird averaged 4 eggs less than birds in coops with 6 waterers per 500 birds; reducing waterers to 4 per 500 birds cut production 9 eggs; 3 waterers per 500 cut production 14 eggs; 2 waterers reduced eggs per bird by 20; and 1 waterer per 500 birds reduced egg production per bird an average of 33.

In these tests all of the birds were of the same uniform, hybrid breeding and all were raised under average conditions. That means that other stresses were present, for even the most important stresses have little effect where other conditions are ideal.

Another very important stress might be called social tension. This is the tension that exists before the peck order is established. Scientific studies show that in establishing the peck order there is a fantastic amount of pecking—every minute during daylight hours each bird in the flock either pecks another or receives a peck. How would you feel if someone took a poke at you every minute?

Social tension brings losses in feed consumption, body weight and production. Fortunately, pecking is just about cut in half when the flock becomes organized, that is, when each hen knows where she stands in the peck order.

Tests have been conducted where one pen was allowed to become organized naturally while the other was kept from ever becoming organized by continually mixing in strange birds. Over a year's time, the organized flock laid some two dozen eggs more per bird than the unorganized flock. The difference would probably have been even greater if the peck order had been established by housing time in the case of the organized flock. As it was, it took about two months to establish.

In large flocks there is probably not one peck order established, but several. The birds a hen learns to recognize in a big pen are those she sees most often. They are the birds that hang out in her part of the pen. Together they form a peck order community. From the center of her community no bird should have to go farther than 10 feet to get feed, water, grit, nests, roosts, or anything she needs. In this way she will seldom run into a strange bird.

With this arrangement, 100-bird communities are developed which can become organized and settled down to high production. Where the poultryman arranges the pen facilities to make work easier for himself without regard for the community of hens, social tension remains high since each bird is forever bumping into strangers as she goes afield to visit facilities not provided in her home community.

Not All Stresses Are Bad

Some stresses are encouraged by poultrymen. Pullets must continue to grow for the first 10 months even though this is a minor stress. And the very purpose of keeping chickens is to burden them with the stress of high production. The higher the production the greater the stress and the more necessary it becomes to keep all other stresses away. With proper management, a well-bred hen can lay at over 80 per cent for most of the year and should never fall below 70 per cent.

With high production, it is most important to guard against the important stresses of faulty nutrition and depletion of body reserves. A hen in high production has great need for the materials that go into producing eggs, vitamins, proteins, and minerals.

With the good feeds on the market today, the most common mistake is for good quality feed to be fed out of balance. That is, too much grain in relation to the mash. The mash is high in protein, vitamins, and minerals which are needed to produce flesh, eggs, and growth in the bird. If mash is fed to excess, the performance is high, but feed costs per dozen eggs is excessive. The grain, on the other hand, is high in carbohydrates which the hen needs to produce fat, energy, and heat. If grain is fed to excess, the hen produces fewer and smaller eggs, becomes broody, and there are more culls and deaths. And once more the feed cost per dozen eggs is too high due to greater feed consumption and poorer production. For the lowest feed cost per dozen eggs, mash and grain must be in proper balance. A protein level of 16 per cent in the total ration is normally adequate.

Birds that are bred for high production will rob their bodies, if necessary, to get what they need to lay eggs. This creates a serious stress that will soon turn a high-producing bird into a cull. In fighting this stress, poultrymen have discovered that the two most important sets of records they can keep are body-weight records along with feed consumption records.

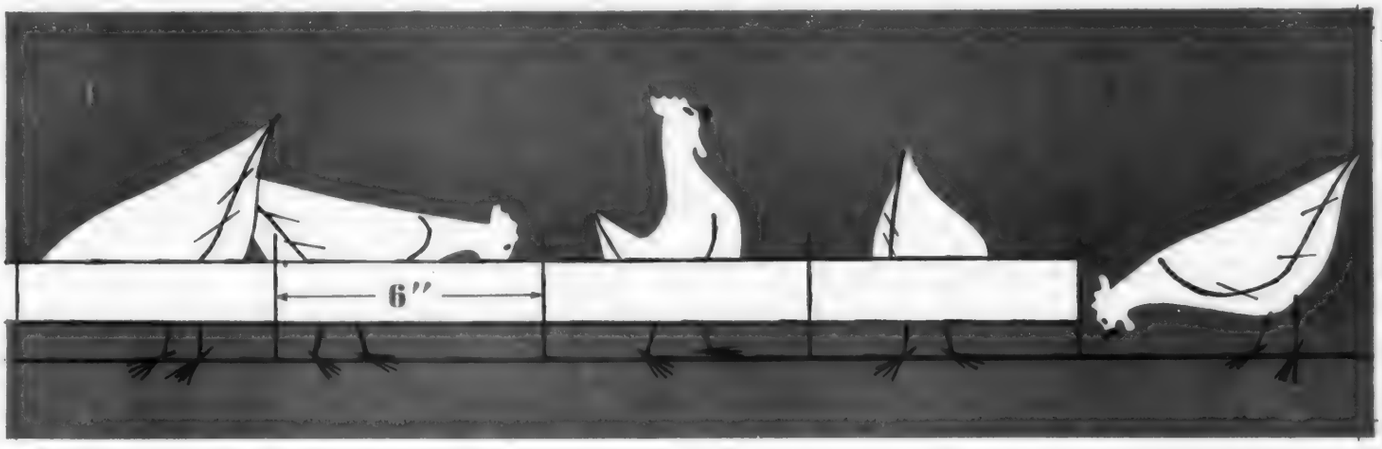
We know that a bird that weighs four pounds at housing when she is four months old should continue to grow and gain weight. During her fifth month she should gain .38 of a pound; the sixth month, .30; seventh, .23; eighth, .16; ninth, .10; tenth, .05; eleventh, .04; twelfth to fourteenth, .03 per month; and fifteenth to eighteenth she should gain .02 each month.

A simple, practical, and accurate way to keep track of growth is to check-weigh a sample of birds in each pen each week or at least once a month. To do this, the farmer can select six birds in a small pen or 20 in a large one from the roost at night, marking their backs with dye or paint. Since birds tend to roost at the same spot each night they can be located easily any time after dark. Weighing can be either individually or in lots.

If body weight gains are not up to standard, there are two major reasons to check. The first is the mash-grain ratio; it should balance out to 16 per cent protein for the total feed. The other cause may be that the birds are simply not eating enough. Appetite can be stimulated in several ways: by feeding pellets; by feeding part of the mash as a wet mash; by adding whey blocks cut into small pieces and distributed around the pen; by adding molasses at the rate of 5 pounds of molasses to each 100 pounds of mash, or by feeding an appetite stimulator such as para-aminobenzoic acid (PABA) which is an extremely powerful and completely safe preparation.

Feed records will show whether the birds are getting enough feed or whether they may be wasting it. A rule of thumb is that it takes 27 pounds of feed a day for each 100 birds when they are producing at 80 per cent, and weigh around four pounds, if the weather is mild. If, under these conditions, the farmer finds his hens are using too much feed, he should turn detective and find out where he is being robbed. The most common causes of wasted feed are: feeders filled too full; narrow troughs with no lip; rats; chickens with worms; poor-quality feed; too much grain in relation to mash; poor insulation of the coop which causes the birds to eat more to keep warm; and inadequate grit.

Some of these causes of feed wasting are themselves stress factors that should be considered. Since the hen has no teeth, it is important that she have a constant supply of clean granite grit in well-spaced hoppers to give her the grinding material for the gizzard. The greater the intake of every feed, the greater the need for ready access to grit. Grit hoppers should be as easily accessible as those for feed. The hen should also have plenty of limestone grit or oyster shell to supply her with the calcium for egg-shell production. Half the calcium for tomorrow's egg shells must be eaten today. And remember the pecking order—there should be six linear feet of shell and grit-feeding space for each 100 birds.



The boss hen will always get her feed, grit and water. The bottom hen in the pecking order, however, will be left to starve if there is less than six inches of feeder space, a waterer for each 100 birds, and six inches of grit and shell space; with ample feed she can lay as well as the boss.

Health and Happiness

Poor health, like all of the other stresses mentioned, contributes to the stress load a hen must bear, but is only a part of it. A disease that wipes out the entire flock is still just a stress factor. If no other stresses were present maybe only half the flock would have died. Low-grade infections that are so mild they aren't even noticed are stress factors, too. Among the primary diseases, watch out especially for Newcastle, bronchitis, and coccidiosis. These diseases are bad in themselves, but worse yet, they pave the way for others such as chronic respiratory disease (CRD), leucosis, and other intestinal disorders. Knowing that a healthy, stress-free bird can throw off most diseases, a good poultry manager will keep all stress to a minimum, buy chicks with a reputation for livability, maintain clean coops, and give his birds the protection of vaccination where this is practical.

Internal and external parasites—worms and mites—are another needless source of stress that most hens must bear. Round worms, in their developing period, scar the intestines. Later they rob the bird of feed, give off poisons, and block the intestines. Capillary and tapeworms are, if anything, even more damaging. Lice and mites lower production and interfere with growth. The only way chickens can get round worms is by eating the worm eggs. Worming chickens gets rid of the adult worms only. Young worms are buried in the intestinal walls out of reach of the wormer. You need to follow up with a second worming three weeks after the first to get these young before they start laying eggs. But the second worming does little good if the litter is not free of worm eggs.

Nicotine (but not Piperozine) worming medications, sulfa drugs, and vaccination are themselves cause of stress. When properly used, however, this stress lasts but a short time and relieves the hen of a greater stress.

Healthy hens are happiest and free of stress when the coop temperature runs between 45 and 75 degrees. When the temperature gets beyond this range they begin to suffer from stress and egg production suffers drastically. Egg quality and size are most affected by hot weather.

We can't do anything about the weather, but we can do a lot to protect the flock from the extremes. We can insulate walls and ceiling against both heat and cold. We can put in a ventilating system that will pull out the moist air from floor level in

(Continued on page 126)

The transition from the amber grain to finished macaroni starts with spring planting with a press drill. Harvest begins with a cutting and windrowing operation performed with a swather. After a few days in the windrow the grain is ready for combining. Only durum produces the tough dough from which high quality macaroni and similar products are made.

Durum Wheat

RUSSELL DUNCAN did his usual, careful job of sowing his wheat in the spring of 1954. He put out 1000 acres of two recommended varieties of durum, Vernum, and Sentry. But when he combined late that summer his total yield was a scant 1500 bushels—1½ bushels per acre!

His neighbors were in the same fix. The dreaded Race 15B stem rust had swept across the North Dakota durum triangle like a prairie fire before a gale. The crop was a complete failure, so complete there was not even enough grain to provide seed for next year's crop unless acreage was drastically reduced.

Duncan has a reputation for unusually sound judgment, so the farmers around his home at Calvin, 'way up near the Canadian line, were soon asking him, "What are you going to do next year?" They received an immediate reply: "I'm going to grow durum!" And grow it he did, to the tune of yields that were back to normal, running from 12 to 25 bushels to the acre.

The durum story of the past five or six years is a remarkable demonstration of the fortitude and tenacity of the American farmer, of the skill and speed with which our agricultural scientists can bring under control an epidemic of disastrous proportions and the consequences of a short-sighted approach to acreage allotments.

Durum, for those who are unfamiliar with the crop, is a very hard amber or red colored spring wheat used in the production of macaroni, spaghetti, and similar cereal products. It is grown only in western Minnesota, North and South Dakota and, since the 15B stem rust invasion, in parts of Montana. A dozen or so counties in northeastern North Dakota make up what is commonly called the "durum triangle," the heart of the durum producing area. Normally, North Dakota grows about 90 per cent of the nation's total output of durum. In a good year the national total will run between 35 and 40 million bushels. Since World War II the consumption of macaroni and similar products has increased 150 to 200 per cent. The demand for durum, both domestic and foreign, has been excellent and at no time in the past 10 years or more has there been a surplus of the grain.

Why Durum?

How durum came to be introduced to the northern part of the Great Plains is hard to determine with accuracy. But this much is certain, that around 1900, Dr. Mark A. Carleton, of the United States Department of Agriculture, a man whose plant-hunting activities took him to all parts of the globe, brought to North Dakota several varieties of wheat developed from selections he had made in Russian lands. His theory in doing so was that in its semi-aridness (20 inches or less of annual precipitation) North Dakota was similar to the homeland of these wheats and they should be potentially good yielders.

They did catch on. The climate and the soil of the area seem to team up to furnish the perfect combination to produce the highly-prized amber color that is demanded by the macaroni makers. The growing season is short, only about 100 to 110 days; around Langdon, the capital of the durum triangle, the average annual temperature is only about 36 degrees, though there are some blistering summer days when the thermometer registers over 100; 11½ inches of the region's 18 inches of precipitation per year fall during the growing season; and the soil is a dark, rich Chernozem.

The hard spring bread wheats also do well in this area and durum must compete with them for every acre on which it is grown. The fact that it matures a little later than the bread wheat and occasionally produces somewhat smaller yields is considered of secondary importance to the dyed-in-the-wool durum grower who sees in it a specialty crop which commands a premium of 10 cents or more a bushel in normal years. And, ironically enough, until the advent of 15B, it was highly resistant to all the races of rust which plagued the bread wheats.

To the men in Washington who write the laws, durum has always been no different than any other kind of wheat. They lumped it with all other classes of wheat in their deliberations and subjected it to the same quotas and acreage restrictions. This despite the fact that there was no surplus of durum and little or no reserve.

Enter 15B

The acreage restrictions were about the only dark cloud on the durum grower's horizon during the latter half of the '40's. With a combination of durum and flax many a North Dakota farmer had little to worry about. There were cases of head blight and maybe some root rot, but year in and year out these were not serious.

Then 15B hit. And when it hit, there were no commercial varieties of either durum or bread wheat which were resistant to it. But the bread wheats, because of their earlier maturity, fared a little better in the epidemic. They could be harvested before the rust had a chance to complete its final build-up of the season.

Stem rust appears on plants in the form of fungus pustules, each of which, when they reach full development, send out hundreds of thousands of spores which are carried by the wind to other plants, where they germinate, form more pustules and continue the spread of the epidemic. A new and larger generation of spores is formed every 10 to 14 days.

Warm, humid weather is most favorable to the build-up. The fungus deprives the plant of much of its moisture and nutrients; in a serious epidemic it cuts yields to almost nothing and seriously affects the quality of the grain. Much of the durum hit by 15B in recent years

tested only 40 pounds and was almost worthless on the color score. The spores are carried up to the Dakotas by southerly winds in the summer and blown southward again in the fall. They may be carried to altitudes of 10,000 feet or more. It has been estimated that a heavy rust epidemic in South Dakota might produce 2 sextillion spores and that if only one in 10,000 of these were blown over the North Dakota line, there would still be 4 spores for every wheat plant in North Dakota. All of which may furnish another angle to the adage about the "ill-wind"; for the blistering winds which were scorching crops in Kansas this past summer were picking up few rust spores and were being received with a welcome in the north. Had the weather in Kansas been humid the story might have been different.

There are around 240 strains or races of rust, but fortunately, no more than a dozen or so are ever active at any one time or place. Race 15B was first found in this country on a barberry bush in Iowa in 1939. The following year it was discovered in the east, in Virginia and Pennsylvania. Except for a little found in Manitoba it did not make an appearance in the Great Plains until 1950.

The plant breeders knew that Khapli emmer, a plant distinct from both the durums and the bread wheats but which crosses well with durum, was resistant to 15B. So, in 1944, Khapli was crossed on durum and in 1946 some selections were made from seedling rust tests. That was all that was done until the epidemic struck in force in 1950.

"We knew we were playing with fire," says Dr. Ruben Heerman, USDA research agronomist at the North Dakota Agricultural College, "and we didn't want to take any chances of its getting away from us. So long as there was no pressing need for a durum resistant to 15B at that time we didn't feel justified in working with the stuff in our nursery plots." So the work of breeding a variety of durum resistant to 15B stem rust was not pushed.

Russell Duncan combines the product of a plant breeding miracle, one of the new varieties of durum resistant to Race 15B.

Plant Breeders to the Rescue

But when Race 15B made its first serious attack in 1950 the plant breeders responded to the alarm like old fire horses. Working under the direction of T. E. Stoa, chairman of the Department of Agronomy, North Dakota Agricultural College, they came up, in the short space of 5 years with not just one, but with 4 new varieties of durum, each of good quality and each resistant to 15B. This is the first time in the history of plant breeding that such a task has been done in less than 10 to 12 years.

And how was this done? All the older and established varieties of durum, Mindum, Stewart, Vernum, Carleton, and Sentry, to name a few, were crossed with plants known to be resistant to 15B. Khapli emmer and a durum introduction from Palestine, P. I. 94701, together with the resistant selections made in 1946, were the basis of this work.

In September, 1950, a seeding was made in the greenhouses at North Dakota Agricultural College. This crop was harvested around New Year's; the seeds were immediately replanted and harvested about May 1. The seed from this second crop was then planted in the fields and subjected to rust inoculation. Resistant plants selected from this field crop were propagated for two more generations in the greenhouse the following winter (1951-1952) and the increase sowed back in the fields in the summer of 1952.

The work had progressed to such a point by the fall of that year that the selections made at this time could potentially become new varieties. Twenty-five grams (1 oz.) of each of 32 selections were sent that fall to Brawley, California, a town in one of the southernmost counties of the state, where they were sown as winter wheat, harvested, and 4 to 5 pounds of seed of each of the selections returned to Fargo for further increase in the plots.

At the end of the summer of 1953, five lines were selected on the basis of tests for yield, uniformity and quality as well as resistance to the dreaded Race 15B. Ten pounds of each of these selections were shipped back to California for the winter growing season. This seeding produced 5 to 8 bushels of each of the strains which were sown at Langdon, North Dakota, in the spring of 1954, the most critical year of the 15B siege.

That fall one of the 5 experimental lines was dropped because it failed to meet all the standards set by the breeders; 238 bushels of the remaining 4 varieties were sent to Yuma, Arizona, for increase during

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Production Line Methods for SILAGE

By Fred Knoop

No matter who you talk to about handling silage in bulk, you'll find that they are sold on their own methods. A farmer who has this approach to his work isn't bragging. It's only natural that he will like a system that he has worked out through mud and snow and summer heat over a period of years. It is geared to his own farm operation.

That jack-of-all-trades and master of a good many of them, the modern farm operator, has had engineering brains backing him up in the plants of farm equipment manufacturers and now there are new machines, new ideas, and new methods that are turning this heavy farm job into a high speed, equipment-handled operation on many farms.

If you talk to Walter Renk of Dane County, Wisconsin, (shown in the photograph above), he'll tell you that the quantity of silage that has to be dug out of his big 4000-ton trench silo carries with it all the problems of strip mining coal. He says, "Now that we've learned how to tackle this mountain of silage, the savings we have made in handling silage in bulk have cut our handling costs in half."

Out in South Dakota along the Sioux River, Louis Andrews and his son got into the bulk silage business in 1951 with a couple of 800-ton upright silos. Then they added a 300-ton trench silo as drouth insurance. Says Andrews, "The important thing about every new labor-saving device on the farm is that it increases the number of animals you can handle. And anyone without volume today is sunk." Volume is no idle talk with Andrews, for with his son and one extra hand he feeds 7000 to 8000 sheep. Just to keep his hand in the breeding end of the cattle business, he runs a herd of 350 Angus cattle.

Edgar McWhinney, five miles over the hill from the Moline, Illinois, Airport, learned, like a lot of other people, that building and filling a trench silo was like buying a race horse. It wasn't the original cost, it was the upkeep that made him wince. And the "upkeep" in a trench silo is getting the silage out, moving it, and feeding it. "The tool that solved our problem looks like a giraffe, and it is the best investment on the farm," says McWhinney. He was talking about his silage loader that tosses 1000 pounds a minute into the self-feeding wagon.

Lawrence Begg and his dairyman, Lyle Graham, of Allen County, Ohio, tackled the problem of bulk silage with a giant-size upright steel silo, a Martin Jumbo. Because this silo has four unloading chutes with doors, Graham says he likes to pitch it by hand from the center of the silo to any of these doors. "We built feed bunks all the way around the silo. We have to handle the silage only once by hand and for dairy cattle, that's practically self-feeding."

There's No Smell of New-Mown Hay

An Indiana farmer-philosopher spending a rainy afternoon in a feed store came up with a working appraisal of grass silage: "I hate to handle it; it's heavy and it's sticky; it draws flies; the juice makes the whole farm smell for weeks; my wife

Walter Renk (left) started filling his silo in June. It's a big job to pile up 4000 tons of silage; even with big equipment it takes all summer.

makes me change clothes after I've been feeding it. In fact, no one likes silage. No one but cows, and they relish it. So that's good enough reason for me to make it."

The disadvantages of grass silage have now come to be accepted, and the advantages appreciated. The silos can be filled without depending on two good drying days, and in June this can be an important advantage. With the right equipment, silage can be made as a straight-line production job: mowing, raking, chopping and blowing into wagons, blowing into an upright silo or dumping into a trench silo are all done with power equipment, without the need of touching a silage scoop.

Then, after a reasonable curing time, 10 days more or less, the silage is ready to feed. From upright silos an electric unloader can drop the silage into a cart or a self-unloading wagon which will do the distributing into bunks. With dairy cattle, the cart still may have to be unloaded by hand.

Silage is an economical way to produce heavy tonnage of succulent feed for use in any month of the year. A cutting of grass silage will produce about 8 times as much tonnage as the same acreage would in a cutting of dry hay. A cutting (and it *is* only one cutting) of corn will produce 2½ to 3 times as much tonnage as the same field would produce in terms of 3 cuttings of dry hay. Morrison lists grass silage made at the wilted stage with a considerable proportion of legumes in it as having a protein content of 6.2 per cent and a TDN (total digestible nutrients) of 19.1 per cent. Corn silage, made when the crop is well matured and in the dent stage, well eared, tests 2.3 per cent protein and has a TDN of 18.1 per cent.

"It All Makes Good Feed"

Going back to Wisconsin we look in on the Renk operation in full swing. They fill almost every day. This is not surprising, since they have 8 upright silos on the dairy farms and the biggest hole in the ground in the Midwest for storing silage for their beef cattle. "We're not particular what we put in it as long as it makes good feed. In the early summer we chop mixed grass and legume fields, then comes corn cannery wastes and the last in is corn stover left over from our hybrid seed operation. It all makes good feed. We've tried it every way; sometimes we use molasses, other times we use ground corn. We've never had poor grass silage, and practically no spoilage, and I mean 2 inches or less on the top, in a width of 60 feet. We used to seal it with 8 inches of straw and 3 inches of limestone. Now we find an 8-inch topping of straw does the job just as well."

Speed is the word for the Renk's chopping and filling work. A Minneapolis-Moline Uni-Tractor, the three-wheeled power unit that takes a variety of implements, has been fitted with a Bearcat Chopper, powered by a 75 h.p. Chrysler engine. After a pair of Ford tractors, one mowing and one working with a side-delivery rake, have a half to an hour work lead, the chopper starts to roll at an easy 10 miles an hour. In 10 to 15 minutes it fills a 4-ton grass body on the dump truck that rides in the chopper's shadow alongside. Even the heavy windrows from the well-manured and heavily fertilized fields don't seem to slow it down.

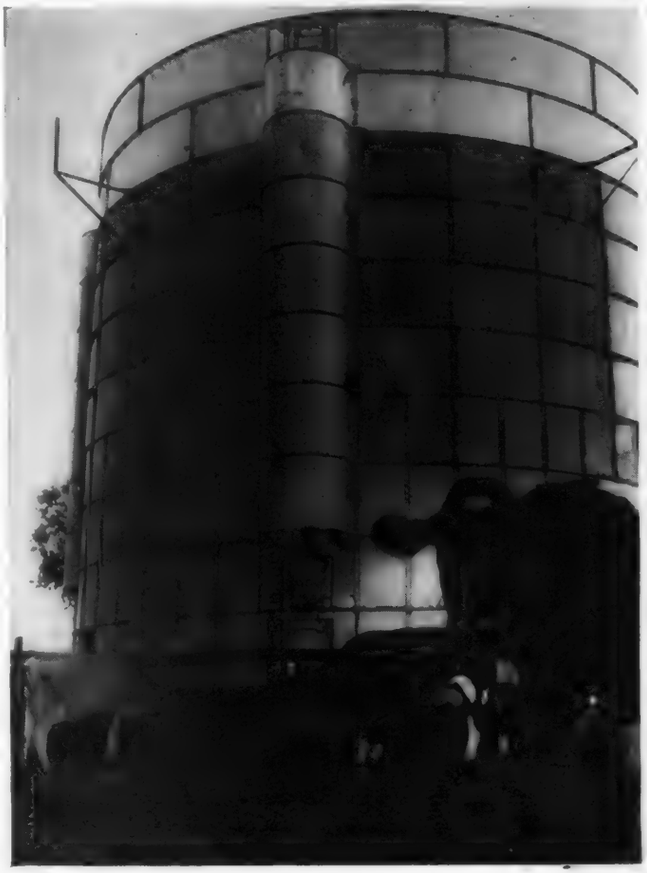
The initial cost of $6,478 for the Uni-Tractor and chopper makes it one of the more expensive farm choppers, but it doesn't have to be slowed down in heavy stands. It is 2 or 3 days before its knives need a re-sharpening even when working in heavy grass. This is done with an outfit that looks like a power drill.

Two of the Farmhand feeding wagons are pressed into service to take the constant flow from the arching gooseneck of the chopper. Most of the fields are a mile or so away from the big trench silo and here the Chevrolet truck's speed pays off; it can make a trip to dump its load and be back in the field in half an hour.

So many visitors come to see the silo that the Renks have posted a statistics board on the road beside it. It reads: "Length 250 feet; width (bottom) 32 feet; width (top) 60 feet; depth,

Two ways to feed silage in bulk are shown above and below. The spout of a self-feeding wagon (above) will drop a ton of silage every three or four minutes along the line of feed bunks. When the bunks are laid out so that a wagon can make the trip without excessive backing and turning this can be a high-speed operation.

At the right is Lyle Graham pitching a husky scoopful of grass silage to one of the four sets of doors of his upright silo. That's the last handling he has to do, for the silage drops into the feeding bunks around the silo. His dairy cattle (below) take it from that point on.



The arching gooseneck of this "power-buggy" (a Bearcat chopper on a Uni-Tractor) shoots out enough chopped grass to keep two Farmhand wagons and a dump-body Chevrolet truck busy running back and forth to the silo on the Renk farm.

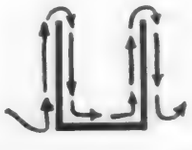
14 feet; capacity 3500 tons." A Cat D-6 with a root rake on the front works back and forth, spreading the load as it is dumped and stretching out a helping bull chain to pull the truck out after it has dumped its load. A Farmall "M" keeps busy packing the new silage against the concrete sides and floor. "I think if we really ever fill the top to an arch, we'll get 5000 tons in it," says Renk.

"We value our grass silage at $8 a ton in feed value in relation to $20 a ton hay," says Renk. "Corn cannery wastes we put the same value on, and the corn silage price is $10. We figure our costs per ton on our big silage job like this:

$3.00 for grass and legume mixture
.30 for mowing and raking
.20 for chopping
1.00 trucking costs, hauling to the silo, packing with tractors.

$4.50 for silage laid down ready to 'make.'

"We feed two kinds of cattle—choice Western cattle and plain cattle from northeast Iowa, southern Wisconsin, from all along the river, about 1500 all together. We unload from the low end of the silo with a Wagner loader on a Ford tractor. Our man who handles that loader is an expert and can fill a self-feeding wagon in about 5 minutes. All the feed yards are shaped like a letter 'U'. We feed all that the cattle will clean up. We start at the base and go up one side and down the middle, then around the other sides, like this:



"The cattle get 2 pounds of grain and concentrate mixture through the winter, fed on top of the silage. One trip a day around the bunks does the feeding job."

An All Grass Program

Louie Andrews' feeding operation, near Hudson, South Dakota, is in the center of land that grows three 40-inch cuttings of alfalfa before it curls up for the winter. His two 800-ton upright silos haven't seen any corn for five years. "We feed out the 6,000 to 10,000 sheep each year on straight alfalfa silage to which 100 pounds of molasses has been added per ton at filling time. Each of the silos has a Van Dale unloader that fills a Helix unloading wagon in 10 minutes.

"There just isn't enough manpower available to pitch the quantity of silage we need," says Andrews. "Now for cattle we use the trench silo and put a Farmhand fork on the tractor. It has big silage teeth that come down on top after the tines are pushed in. Then we just back out and that tears the matted layers of grass silage loose. About four or five forkfuls will load the wagon. This is the way to farm! From the time our two Fox choppers blow the alfalfa into our three trucks with unloading bottoms, we never touch it."

Loading Half-a-ton a Minute

Working out a fast, efficient method of unloading from his 3000-ton trench silo became one of Edgar McWhinney's high priority research projects on his farm near Moline, Illinois. Like many a farmer, he got on wheels to find out what was being done elsewhere. Heading his Dodge toward the Southwest, he explored ranch silo operations in the Kansas and Iowa area and as far west as Wyoming and Colorado. In Kansas he found the tool he wanted and a month later he sent a John Deere tractor down to have the Oswalt Ensiloader installed at the factory in Garden City. This loader is shown in operation on page 53, with McWhinney's son, Scott, at the controls. "We can load our John Deere two-wheel feeder wagon in a matter of minutes," says McWhinney. "It throws a half-ton of grass silage a minute. The load depends on whether we're working in mud or dry ground. It cost me $3400 to tie up the tractor and put the Oswalt loader on it, but it's the best investment I've made. The center mounting frame is bolted to the tractor. Once the installation is made, it doesn't take more than an hour to take it off or put it on. But we prefer to leave it on and have it ready to go. A revolving reel equipped with cutting knives is mounted on a long boom. It will handle a silo as deep as 21 feet if you want to take on that kind of excavating job. The boom is controlled by a hydraulic system that moves it up or down. Once you start the cut at the top of the silage, it lowers at cutting speed by itself. All these controls are at your fingertips. When the silage drops down, it falls into a wide hopper. Here it is picked up by an endless rubber conveyor. This takes it up over the top of the tractor and drops it into the feeding wagon. The power comes from the power take-off of the tractor. If you mount it on a truck chassis, you need one with a power take-off.

"We feed all the silage the cattle will eat. This varies with their size. With it they get corn and minerals on top of the silage and this gets mixed well enough by the unloading action of the Deere wagon."

For Dairy Cattle

What kind of production can you get out of dairy cattle with a feeding program that includes all the silage they want to eat? How can you make silage feeding easier for a dairy herd? Lyle Graham,

Scott McWhinney backs the power reel of the farm's Oswalt loader into the tough, year-old grass in a trench silo. Once he starts the cut the machine takes care of the rest of the operation, dropping 1000 pounds a minute into the Deere wagon.

who is the dairyman on the Lawrence Begg farm near Columbus Grove, Ohio, can answer both of these questions. He says, "Right now, in the heat of midsummer, we're milking 50 Holsteins and Jerseys and we're shipping 46,000 pounds of milk a month. With our Martin Jumbo silo we've solved the problem of saving time and work in feeding silage. We have our cattle in a pole barn that opens on a concrete yard. They never go out in pasture. We built feed bunks all around this 30-foot silo. Then with the four chutes and sets of doors, all we have to do is pitch it down through all of them to get the feeding job done. We spread the silage around a little, but the cows do most of the work.

"We've concentrated our work around this one big silo and that means no running around. At filling time, we set up the blower once and keep working in the one spot. A good day's chopping will raise the level about 6 feet. It takes a lot of grass and corn to put in the 550 tons this 30-foot high silo holds.

"Pitching it down isn't any trouble at all," says Graham, as he shoots an 18-tine forkful at one of the four doors, "and as you can see I've got to be a good enough marksman so that not more than a handful doesn't go down. I divide the

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Shetlands grow a heavy winter coat, need little shelter even in the coldest weather.

We Raise Ponies

By Frank Farmer

TIME WAS, when the West was wild and wooly, that the horse was the most highly valued of all animals, domestic or wild. To be caught with another man's horse was worth your life; to be caught in Indian country without one produced the same penalty.

The automobile and the tractor wrote the epitaph for the horse. Henry Ford made automobiles cheap and when tractors went on rubber, the horse was finished. Horseflesh became so worthless that huge businesses were born which bought horses for as little as a half cent per pound and peddled the ground meat to dog and cat lovers and to zoos. This despicable enterprize flourished in the years immediately following World War II and the horse population steadily decreased until prices rose to five or six cents per pound.

But closely paralleling the demise of this faithful creature was a fantastic boom in the raising of ponies, Quarter Horses, and gaited saddle breeds. Riding clubs were formed in hundreds of crossroads communities all over the country and America's youth, apparently destined to know the horse only as a stuffed skin in a museum, became re-acquainted with the animal. Horse shows today bask in unprecedented popularity, and in many a suburban backyard stable is a pert pony whose prime purpose in life is to tote a youngster or pull a cart. The riding horse and pony businesses now enjoy a firm financial position. There's a good living in sales, breeding and showing, and countless children are quite happy.

A mid-summer news story in the Chicago Tribune indicates just how hot the pony business is. The Tribune announced that Sears, Roebuck & Co. and Montgomery Ward & Co., the country's largest and second largest mail order houses, will list Shetland ponies for sale by mail order for the first time. Spiegel, Inc., another mail-order house, has been listing ponies in its catalog since 1954. The ponies are listed as between 2 and 7 years old: the price $299.95. Sears and Ward will also list bridles, harness, buckboards, and road carts. The pony supplier is Gene Harris, Chicago, one of the biggest dealers in the country, who says he will sell 2,000 this year. He also owns a pony farm in Iowa.

My family belongs to this joyous fraternity of pony owners. We have a mare, a gelding, a suckling colt, and by the grace of a thirty-five-dollar stud fee, will soon have another colt on the way. Our total expenditure has been slightly under three-hundred dollars, counting stock, saddles, breeding fee and feed. We've been in business six months, and if true value could be placed on unvarnished fun, we've had a million dollars worth.

We got into the pony business by way of a rodeo. Here the children saw a pony in action, and once a kid sees a pony, a pony he'll have, or else.

Of several pony breeds, we were acquainted with three major breeds—Shetland, Welsh, and Hackney. We knew little about the Connemara, Highland, or various combinations of these types and breeds, such as the Irish Cob, a pony with some Hackney, some Thoroughbred in his veins, or such as the Petizo, a pony native to Argentina that is noted as an even-tempered, excellent weight carrier. The Quarter Horse, especially the smaller cow pony type, makes an excellent mount for children and is beginning to compete with the smaller breeds as a family pet, suitable for both children and their elders.

Off-breed ponies and crosses of all sorts and descriptions can be bought at bargain prices. A favorite cross is the Welsh and Shetland. An odd one is a cross between a Welsh or Shetland and a jack, commonly called a "pony mule." Its temperament and disposition may be odd, too, but such an animal makes a good conversation piece, and children like them.

The Shetland we knew as gentle, intelligent, an easy keeper and sturdy far out of proportion to his size. The Shetland comes from the 500-square-mile Shetland Islands, a part of Scotland, separated from

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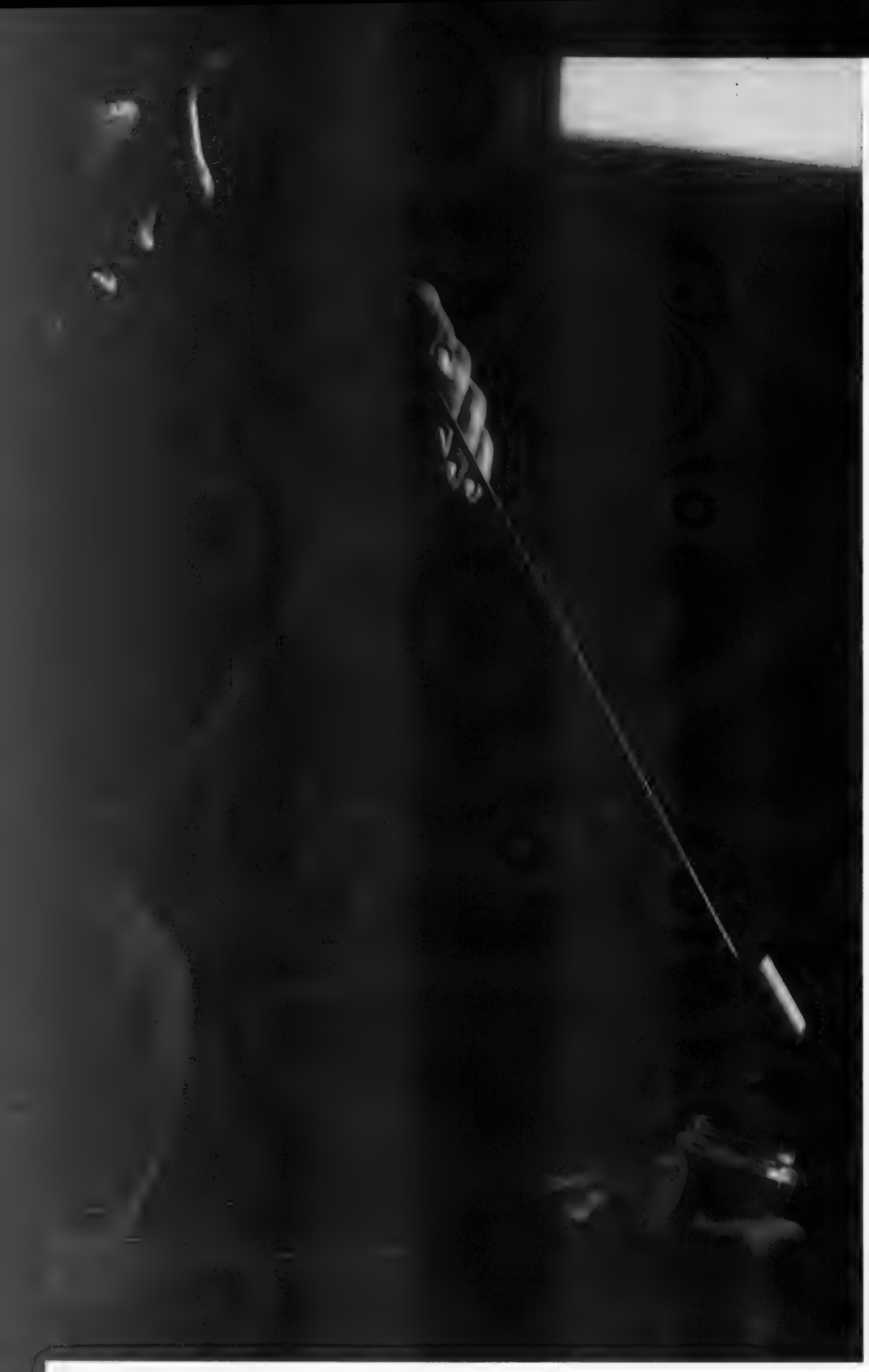
Ponies for pleasure and ponies for show are two separate businesses. The showring pony is an adult hobby, but youngsters have fun in the fancy trappings. The corral (left) is on a pony farm in western Kansas.



Does Herd Testing

LYLE KISER swung his hand along his line of Jerseys and gave an appreciative nod to his wife, son, and daughter. "We're all in this dairy operation together. The best thing about our testing program is that it keeps us from getting sentimental about some pet cow. The tester checks her milk and butterfat records and when we have the facts, we'll know whether we can keep her. We can't afford to keep cows that aren't earning their way."

With the help of his family and the D.H.I.A. testing program, Kiser has made his own dairy know-how pay off; he had the top Jersey herd in Auglaize County, Ohio, in 1954, in butterfat production; the certificate from the Purebred Cattle Association makes it official for any prospective buyers of Jerseys who stop by the Kiser farm. "We find that the buyer wants to look into the records back of any heifer before he talks about taking her home in the pickup. All we have to do to prove the value of our testing is to go over some of our old tester's reports. Take 1942, the year we first tested, we produced 7219 pounds of milk and 332.8 pounds of butterfat per cow on a part grade herd that averaged 10.5 cows. In 1948, we had moved up to 7825 pounds of milk and 394.9 pounds of butterfat on 15.38 cows. In 1954, we averaged 8519 pounds of milk and 436 pounds of butterfat on 20.53 cows. I don't know of a better way to invest $9.50 (that's what it costs us for 20 cows a month) than in testing."

The visit of the milk tester can be the most profitable time of the month for the dairyman who is willing to face facts. After the tester has separated the milk from the froth, weighed it and worked out accurate production and feeding records, the dairyman can cull the boarders and concentrate on the money-makers

The Mechanics of D.H.I.A.

The present Dairy Herd Improvement Association programs in the United States operate on a uniform basis and serve both as a working yardstick for the individual dairy farmer, and the improvement of dairy cattle in general. The work in each state is under the general direction and supervision of the State Extension dairymen and under the immediate direction of the county agricultural agents. The Dairy Husbandry Research Branch of the U.S.D.A. furnishes record-keeping forms and cooperates with the states to coordinate the program on a uniform basis throughout the United States.

The Dairy Herd Improvement testing work, including the calculation of records

Pay?

By L. W. Jacquemin

and compiling and reporting of the data, is done in accordance with rules established by the American Dairy Science Association. The important rules are: in each herd all weighing, sampling, and testing of milk must be done by the supervisor; all cows of milking age in the herd must be put on test; all cows that have been on test during the year must be included in the yearly herd average; and only the figures obtained by the supervisor on the test day may be used in computing the monthly production. Cows need not be registered to be tested on D.H.I.A.

A Dairy Herd Improvement Association is a cooperative organization of dairy farmers who employ a test supervisor to keep production, feed, income, and breeding records on their cows. The test supervisor is usually trained and approved at the state agricultural college by the Dairy Extension specialists. The training is accomplished by scheduled testing courses of approximately two weeks duration.

The testing-supervisor visits each herd in the association once a month or once every two months, in the case of bi-monthly testing. He usually arrives at the farm in the late afternoon. During the evening milking he weighs the milk produced and determines the feed consumed by each cow and samples her milk. The same procedure is followed during the milking the next morning. The milk samples are then tested to determine the percentage of butterfat. Using the weights and tests for the 24-hour period, he calculates each cow's milk and butterfat record for the test period. At the end of the year he compiles the yearly record for each cow and each herd. Studies made from much data have shown that yearly records, based on weights and tests for one day each month, are within two per cent of the actual milk production and three per cent of the actual butterfat production.

The supervisor enters all records in a herd record book provided by the Dairy Husbandry Research Branch at the U.S.-D. A. These records are used by the herd owner as a guide in his management operations. The supervisor also assists the owner in keeping a record of the progeny of each cow, and ear tags those animals in the herd that have no identification.

During World War II when testers were as scarce as nitrogen fertilizer, the D.H.I.A. associations encouraged a small brother type of testing which was less expensive and which required the owner to take the samples of milk from each of his cows, label it, and have it ready for the tester-supervisor to take to the laboratory. This type of testing was ideal for many herds and this small boy of testing programs now has grown into a husky dairy helper. Wisconsin has worked out an active

(Continued on page 113)

Ed Terrill of Waunakee, Wisconsin, is on an Owner-Sampler testing program. He keeps his own milk weights and takes a small sample once a month for butterfat testing in the county laboratory.

John Bouic surrounded by some of the fine and gentle Holstein heifers that he and his four brothers raise on their farm near Marysville, Ohio. Their dairy herds have been on H.I.R. test for 21 years.

This is Sandra Kiser giving a lift at milking time with the family herd of Jerseys. The Kisers are on D.H.I.A. and are active in Association work in Auglaize County, Ohio.

COUNTRY

By Chester Charles

COUNTRY BANKS never die. Nor do they fade away. They usually outgrow the old safe and the fumed oak and the coal burner. The potted fern within the doorway becomes an indoor planter and the steel ceiling gives way to accoustical tile.

But the bank at Crab Orchard, Kentucky, is an exception. It looks just as it did 50 years ago. A reassuring three-ton safe stands inside the front window. The oak panelling, the iron grillwork and the uncomfortable wooden bench remain. Behind the wicket, a young cashier, Robert R. Baker—who is also executive vice-president—dispenses the same friendly services his father did for decades before him. Like many rural banks, the Crab Orchard Bank has always been a clearing house for community business, both personal and financial.

It has taken city banks a long time to get around to doing what country banks have always done. One bank's money is much like another bank's money, but competition among urban banks has caused them to stress services, with flowers for the ladies, travel information, drive-in deposits and similar gimmicks. Service is an old story to the rural banks. Years ago the country bank often had the only local telephone and it was there for everybody to use. There are still a lot of farms around Crab Orchard without phone service and when a long-distance call comes for a farmer, it is relayed to the bank and Banker Baker goes out and brings the farmer in, just as his father did 40 years ago.

When farmers around Crab Orchard want income tax advice, they go to Banker Baker. He draws up deeds and wills without charge. Notary work, Western Union money orders and acceptance of phone and electric bills are part of his bank's services, gratis. When a tobacco crop is ready, the bank will phone Louisville to arrange for a date for warehouse delivery. If a body needs some typing done, it's free at the Crab Orchard bank.

The Crab Orchard Banking Company, as it is listed on the books, takes a firm grip on the lives of local residents from their first breath until their last gasp. President of the bank is Dr. M. M. Phillips, Crab Orchard's only physician. Some 1000 of the more than 4000 Lincoln County babies he delivered in his 50 years as a country practitioner held a parade in his honor last year. Loans to pay for the baby, he'll arrange at the bank. Dr. Phillips also runs an emporium. If the customer doesn't like the prices there he can take his trade to Banker Baker's general store. Baker, incidentally, is Dr. Phillips' nephew.

The village mortician, also a director of the bank, offers a dignified burial for as little as $500. Baker, as treasurer of the local cemetery, one of the oldest in the south, will see to it that your grave gets proper care if upkeep fees are deposited with the bank. From the cradle to the grave the bank gives well-rounded service.

Behind every prospering bank is a dominant personality. Baker is the man at Crab Orchard—part cashier, part salesman, part showman and part traveling tinker. He keeps one hand in his

(Continued on page 139)

The bank at Crab Orchard, Kentucky, looks the same as it did a half century ago, but the banker, Robert R. Baker, is a mid-century go-getter with a finger in almost every profitable pie in the community.

BANKER

The symbol of security is the vault, impregnable, fireproof and a thing of beauty. Unsung artists painted the scenes in oil.

If you want to use the adding machine, have a will drawn up or pay your phone bill, the bank will serve you. If you just want to visit, the hard chairs make you feel at home.

On these stools bright young men and women meet the bank's clients and dream of the plush and marble of the big city.

Going into debt is a serious step for a farmer. Here a borrower gazes at the trademark of the country bank, a potted fern in the window.

The McWhinney Way with BEEF

THE DAWN COMES UP like thunder only on the Road to Mandalay. In all other spots it is preceded by a period of twilight. It is in just such a twilight that today's beef feeder finds himself. Assuredly, the dawn of a new day is about to break. Hormones, antibiotics, increased emphasis on roughage feeding, a decline in the importance of corn, changing consumer preferences in beef, and the adaptation of new techniques to the old feedlot chores are but the first subdued glimmerings which herald the rising sun.

The changes are inevitable, though they are relatively slow, and they cast their rays of light before them. The men on the hilltops have their work illuminated by these rays long before their brothers in the valleys. Edgar McWhinney is one of these hilltoppers and a good man to watch. He has combined all the new factors into an efficient feeding operation in which he turns even the by-product, manure, into cash.

The McWhinney family has farmed around Henry and Rock Island counties, just east of Moline, Illinois, for generations. But that doesn't make Edgar a member of the what-was-good-enough-for-Pa-is-good-enough-for-me school. He served notice of his withdrawal from this society 'way back in 1935 when he announced, "If we have to hand-pick corn once more, I quit." By the fall of '36 the McWhinneys had a corn picker.

It was just a few years before this that

young Edgar, anticipating the prospect of a few years of college training, had walked into the local bank one summer morning to deposit the bulk of his worldly wealth for safekeeping until needed in the fall. "How do you like school?" asked the banker. "Oh, just fine," replied the ever-trusting depositor. That afternoon the bank closed its doors. They never opened again. And so ended McWhinney's collegiate career.

But he's had every course in the catalog of the school of experience from which he has graduated *summa cum laude* with a major in cattle feeding. He received his degree in the fall of 1946. The top price paid for prime cattle at Chicago that year was $37. A load of McWhinney steers was one of three that brought it. While he has never quite made the grand championship in the carload lots at the International, he has been among the top half-dozen on a number of occasions. It was his International experience that led him to his present marketing pattern. He sells regularly on the Friday after Thanksgiving, the day the market booms along under the stimulus of the carlot throwouts. "We used to clip our cattle and send them in to get in on the show throwouts," he says. "Now we don't even bother to do that and we don't feed out to a prime grade, either. We get our cattle up there the day after Thanksgiving in choice condition and more often than not we'll be within fifty cents of the top and at a lot less expense."

Despite his apparent success with heavy corn feeding and prime cattle McWhinney's most oft'-repeated prayer is "Thank the Lord I got smart." He gets his feeders every year from Earl Brown's T Chair Ranch at Gillette, Wyoming, and feeds them out in partnership with Brown. One year not so long ago, as McWhinney tells it, the partnership dropped enough in its feeding operations to buy a fair-sized Illinois farm, even at today's lofty prices. That was the second time he threatened to quit farming. But this quiet, weather-tanned Illini could no more quit farming than he could stop breathing, so he had to dig up a good alternative to his old methods. The alternative turned out to be a program built on two pillars: starting the feeding program with very light calves, 290 to 300 pounds, and the intensive use of roughage. With this program McWhinney more than triples the weight of his cattle in a year. Here is how it's done on Broadlawn Farm.

The calves, around 300 of them, and all steers, arrive at the McWhinney's 107-acre Broadlawn Farm between October 25 and December 1 every year. They are pretty tired little fellows even though their fast train ride from the Wyoming range to the Illinois feedlot has taken only about two days. Before loading they are vaccinated for shipping fever. Immediately upon arrival at the farm they get another 6cc. shot of the same vaccine (Lederle Hemorrhagic Septicemia Bacterin) and this treatment is repeated a second and a third time at two-week intervals.

For the first week they get 2 pounds of oats per day, and hay. But the hay is far from top quality. First cutting stuff is as rich material as these travel-worn calves can handle, McWhinney says. And the results seem to bear him out. He hasn't lost a calf in the last two years, whereas formerly his losses had run to an extreme of 10 per cent.

The calves get their first taste of silage the second week in the lot. And from that time until May 10, silage, both grass and corn, is the base of their ration. McWhinney has a 3000-ton trench silo which he fills with second and third cutting alfalfa and brome, and with corn. This little wrinkle is one of the McWhinney specials. Most farmers and most of the experts argue that it's the first cutting which should go into the silo. It is coarse and weedy and it is almost impossible to get it in without the rains hitting it. But the man at Broadlawn doesn't see it that way. In his opinion silage is the ideal form of roughage and he believes in making it out of the best materials. Furthermore, as noted, he thinks his calves do better on hay of something less than top grade.

Five or six pounds of silage is all the calves can handle at first, along with their hay and oats. It it not long, though, until they are taking 10, 15, then 20 pounds; and as their consumption picks up, they begin to get some protein supplement, starting with a half pound per head per day and working up to a full pound. The supplement is another unique feature of the program. McWhinney is pretty particular about his feeds. He likes them tailor-made according to specifications. So to keep costs down and still retain the advantages of his private formula, he purchases the raw materials in bulk, has his own mixing plant and bags and sells Broadlawn Feeds. His cattle feed is 40 per cent protein, based largely on soybean meal and meat scraps. This is laced with stilbestrol, terramycin and Rumex, a rumen bacteria preparation which he values as a big help in diges-

Twice a day, rain or shine, all summer long, the forage harvester is in action on Broadlawn Farm cutting a lush growth of alfalfa and brome grass, blowing it into the wagon to be hauled to the feedlots. This 22 acre field carried 240 steers for 50 days this past summer. Edgar McWhinney (opposite page) stands waist-deep in corn two weeks before the Fourth of July, proverbial date for a knee high crop. All his corn goes into a trench silo.

While the elder McWhinney looks on, son Scott forks the home-mixed protein supplement into the top of a load of freshly cut forage. The supplement is fortified with stilbestrol, terramycin, Rumex, and, during the winter, twice the usual amount of vitamin A.

tion. As his calves come from an area which has been hard hit by drouth the past few years and are low in vitamin A, he fortifies the feed with twice the amount of this vitamin ordinarily used in feeds.

Green Feeding

The second phase of the feeding program begins May 10. On that day silage feeding stops and the calves are switched to alfalfa or a mixture of alfalfa and brome chopped in the field and delivered to their bunks morning and evening, rain or shine. At this point, too, the oats are cut out of the ration and 6 pounds of cracked shelled corn are added.

Green feeding necessitates additional outlays in machinery and equipment and it means hard going on rainy days, but the payoff is well worth the effort and expense. As McWhinney puts it, "I hate to go out there in the mud and it's extra work, but it certainly pays to green chop. It puts an extra quarter pound a day on the cattle and that's worth money."

With a forage chopper and self-unloading wagon it takes two men about an hour in the morning and another hour in the evening to feed 300 head of cattle. The loaded wagon, a two-wheeled affair, is hauled from the field to the granary where the supplement and corn are thrown on top of the load and then to the lots where the luscious green mixture is elevated from the wagon into the bunks.

The feed production per acre under this system is phenomenal. One 22-acre field carried 240 steers from May 10 to July 1 this past summer, an average of almost 11 steers per acre for 50 days.

Around the end of August or the first of September, McWhinney begins to pick the green corn, which by that time is in the milk stage. He cuts back the cracked shelled corn in the ration to 3 pounds and adds 4 pounds of the new grain. This is picked once a day and ground morning and evening in a Letz mill. It comes out of the mill in a wet, pulpy mass and the cattle love it. In the course of 2 to 3 weeks, the corn declines in moisture content and by that time the cattle are on a full feed of corn, getting 15 to 16 pounds per day, and have been switched over from green chopped alfalfa to silage. Sixty days of this and off they go to market weighing 1000 to 1050 pounds.

At present all the McWhinney cattle are fed to a choice grade. Such a marketing goal not only reduces costs but guarantees a good demand for the finished product. The McWhinney cattle invariably go to chain store buyers. And the trend as he sees it even now is running to good rather than choice cattle. This may make it possible to utilize roughage even more. The housewife has consistently shied away from meat with yellow fat, but now she is being told that this yellow fat, which both she and the trade have discounted, is much richer in vitamins than white fat. If and when this consumer preference changes grass-fed beef will be in even greater demand.

The Fine Points

Wringing a profit out of a sizeable feeding operation on a rolling 107-acre farm demands intensive management. "The only way I was able to make money in the old days," McWhinney says, "was because times were good. We'd go busted fast in these times if we tried to operate with heavy feeders on corn for almost a full 12 months. Light calves and roughage are what pull us through."

And basically that is the McWhinney formula. It is also a gross understatement, for it takes a skillful manipulation of the tools of the trade to put those two raw elements together and come out with finished cattle in a limited time and on a limited budget.

First take the crops that feed the cattle. McWhinney grows the kind of corn and alfalfa that are the envy of his neighbors. "Your fertilizer applications must be tremendous," commented a visitor last summer as he followed the chopper through a lush stand of knee-high alfalfa.

"We don't use any fertilizer," was McWhinney's reply, "just manure. We keep the pH up with occasional applications of limestone and on rare occasions use a little phosphate, but that's all. Manure is our only fertilizer. Cattle on a high roughage program put out a lot of manure, so much that we not only have more than enough for our own fields but we sell it as well."

How he sells it is a typical example of farmer ingenuity in action. For years the McWhinney place had produced more manure than it could possibly use. McWhinney gave his surplus to his neighbors but when they expected him to haul it, too, he found his charity overtaxed. Then one evening he came across an ad in the paper for an alfalfa dehydrating plant for sale. It didn't take him many minutes to sense the possibilities of what a man could do with a combination of manure and a dehydrator. Today the production of Broadlawn Dehydrated Manure is a project that keeps young Scott McWhinney, a high-school senior, and Lester Hatfield, the McWhinney hired man, from the curse of idle hands during the slack days of July and August. Experience has shown, too, that these hot dry days are much the best for this job. At this time of the year the plant has a capacity of 8 tons per day. In the spring when the raw manure is saturated with water, capacity is no more than 2 tons per day. Gardeners pay $2 for a 50-pound bag at the farm. In carload lots the going price is $45 per ton. Did someone mention barnyard gold?

The rotation on Broadlawn Farm is corn and alfalfa. All the corn and all the alfalfa, except that fed as green chop, goes into the huge 3000-ton trench silo. This hole in the ground is 12 feet deep, 180 feet long, 40 feet wide across its concrete floor, spreading out to 60 feet at the top. This is a lot more capacity than the present size of his feeding operations requires, but McWhinney is the kind of fellow who likes a lot in reserve.

"That stuff will stay in good condition for years," is the way he looks at it, "and if we ever get hit by a serious drouth we'll have something to fall back on."

He uses no preservatives of any kind on his silage. After the corn has gone into the silo in the fall—it goes in with third cutting alfalfa—the corn fields are disced and sowed to a mixture of 12 pounds

It takes about an hour in the morning, another hour in the evening to fill the feed bunks. McWhinney starts with light-weight calves, triples their weight in a year on a high roughage ration. The manure, the by-product of the feeding operation, he dehydrates and sells in 50 pound bags.

of Grimm alfalfa, 4 to 5 pounds of brome grass and about a half bushel of oats, just enough to give the young meadow stand a little protection during the winter. The following year, or no later than the second year, the meadow is plowed up and goes back into corn. Winter, spring, and fall every field on the place gets a treatment of manure whenever time and weather permit.

All his hay and all his corn other than what goes into the silo McWhinney buys from his neighbors. He cuts and bales the hay and picks the corn with his own crews. Says he, "At present rates it is cheaper than growing it yourself."

Digging silage out of a trench can be one of the meanest jobs on the farm. With an operation of his size and layout (he feeds his cattle in 3 different lots) McWhinney feels self-feeding is impractical. So he has taken the drudgery out of the job with 2-wheeled, self-unloading wagons which are pulled into the silo and loaded with an Oswalt Silage Unloader. (For complete details on this type of unloader see article on page 50). Working at top capacity the Oswalt can throw 1000 pounds of silage a minute into the wagons,

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By clever selection and management, Clarence Kaiser, Crawford County, Ind., farmer, has stretched his grazing season to more than ten months of the year. Below are three grass and legume mixtures (with seeding rate) from three pastures.

(1) Birdsfoot trefoil 4, hairy vetch 5, bluegrass 2, fall oat grass 4, timothy 4.

(2) Bluegrass 4, rye grass 4, redtop 1, fescue 3, lespedeza 5, ladino ¼.

(3) Perennial rye grass 5, timothy 4, alsike clover 4, ladino clover ¼.

All Year Pastures

By Michael Allen

ALL-YEAR PASTURES, once a gleam in the stockman's eye, are now a reality in parts of the South. In the Midwest it's a different story. Six months of pasture is acceptable, but the pressure has been on to stretch the pasture season at both ends and bring the ends together.

And now there's an Indiana farmer who manages to get pasture for his stock more than 10 months of the year. Clarence Kaiser got into the grass farming business by accident, an accident that happened when his mules, Jack and Tobe, ran away with the grain binder.

They dragged the binder across a large field rock, then down a rail fence at high speed. They harvested a long row of rails (without binding them) and eventually came to a halt in a corner of the field.

"That binder was nothing but junk," says Kaiser. And to this he adds the rather strange observation, "Best thing that ever happened to me."

That evening he spread his records over the kitchen table and sat up late studying them. He was especially interested in his profits (if any) from wheat. "I kept that binder to harvest wheat," he says, "and I found that I hadn't made enough profit on wheat to replace it. It was plain enough from those records that wheat wasn't a profitable crop for this place. That started me thinking."

Kaiser's thinking led him to a whole new way of farming on his Crawford County, Indiana, hills. "I had been on the farm 12 years," he says. "And I had been sticking to my three-year rotation of corn, wheat, and clover. I decided I could do better growing more grass and legumes."

In the following years Kaiser tried every grass and legume he thought stood a chance on his land. And gradually he developed a grassland farming plan that gives him green fields the year round. Of his 110-acre farm, 78 acres are cleared and every cleared acre of it is in grass. For 10 years he has neither plowed an acre nor planted a hill of corn. In fact, Kaiser no longer has a moldboard plow.

And his farming, including hay and silage making, is a one-man operation.

On 78 acres he keeps 100 breeding ewes, 50 head of feeder lambs, and a herd of 20 brood cows, shorthorns and Brahmans and crosses of them and a three-quarter Brahman bull.

Kaiser does not measure his results with the land in dollars alone. "The economists might argue that I'm not getting the most from my land," he says, "but I can only look around me at the mistakes of others, then try to make a living at the same time I'm conserving my soil for future generations. My soil is never exposed to erosion for more than a short time."

But Kaiser can tell you something of the meat and wool his grass crops produce. Every year he shears between 800 and 900 pounds of wool from his 100 ewes. His brood cows drop their calves between late February and early May. And last year the steer calves, all pasture fed, averaged 540 pounds when they were sold in late October for 18 cents a pound. The heifers averaged 460 pounds and brought 16½ cents.

He usually has some lambs for the early market in June. These are January and February lambs and this year his lambing was completed by April 1. On the first of March last spring he already had 30 lambs on pasture. He sells his lambs to the Ohio Lamb Pool with a good percentage of double blues.

In addition to his livestock, which Kaiser says, "I use for my harvesting as much as possible," he realizes some income from grass and legume seed. Ladino seed has turned him a profit and last year he sent 5000 pounds of fescue seed to market. "My farm is making a profit," he says, "and that seems like quite an accomplishment when I look back on what I started with.

"What was the place like when I came here? It wasn't much to get excited over," says Kaiser, "but it was the best I could afford. Of the 110 acres only one small field was cleared and it had been planted to corn. The whole farm was doing a poor job of supporting two cows and two horses.

"There was only one barn. It measured 30 by 32 feet and that was big enough to house all the machinery, livestock, hay, and grain.

"About the biggest thing on the farm," says Kaiser, "was the gullies. I had 'em big enough to name and put on the map. You can't see where it is now because it's all leveled out and growing grass, but there was one gully where I dumped in two old chimneys, 60 stumps, and a rail fence to help fill it. Main crops on the place," he adds, "were briars, saplings, and broomsedge."

To get ample feed for his stock in those early days, Kaiser rented land from his neighbors, cleared the brush off it and grew corn there for two thirds of the crop. Eventually he had 60 acres of his own land cleared and that's when he set up his three-year rotation. "I was tired of grubbing the other guy's fields," Kaiser says.

While the wrecking of Kaiser's binder started him on grassland farming, there was another development that added

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Wild Honey

By Ewart A. Autry

My son and I and our accomplice, Charles "Chigger" Fortner, went out to rob the yellow ones on a warm summer day. We went only to rob, but there were black warriors who came both to rob and to kill.

Our objective was a big post oak tree with a hole in its trunk. Yellow bees streamed into the hole bearing the tiny nuggets from which they molded a fortune of golden honey. We were out to take that fortune, leaving them only enough to start anew. But when we had finished, the black ones came to slaughter and to take what we had left; and they were determined to leave the yellow ones without their royal queen.

It was the workers who had unwittingly led us to the tree. Some of them had come to a piece of honeycomb we had placed on a stump in an open field. We had watched as they gathered their loads and our eyes were upon them as they winged away bearing their burden of honey. After marking their course by a towering pine we had sprinkled flour on a single bee and measured the time between his departure and his returning. It had measured only seven minutes—seven minutes to go, deposit his load and return. That meant the tree probably was no more than a quarter of a mile away.

It was nearer than that, and we had found it after only twenty minutes of searching. We had chopped an X on the tree so no one else would claim it, and had set a day for the robbery. The day was in the early part of July, so the swarm would have sufficient time to find another home and lay in a store of honey for winter while there were still blossoms.

It was early morning when we robed ourselves for the robbery. With our screen wire hats, hip boots, heavy clothing and gloves, we looked like grotesque creatures from a bad dream.

The entrance of the yellow ones was no more than a dozen feet above the ground, so it was with great care that we started the teeth of the saw to gnawing away at the trunk of the tree. We did not wish to incite them to warfare too soon. The tree was a worthless one beset by age and decay, and its passing would leave room for the rapid growth of the young pines around it. The bees took no notice as the saw chewed into the tree, but streamed in and out of the hole completely unaware that disaster was near. Soon the top of the tree tilted slightly and its leaves quivered. It tottered for a moment like a stricken giant, then crashed to the earth with a roar.

The falling of the tree filled the air around us with the sweet aroma of wild honey. There's no scent on earth quite like it. "I think it's a mixture of the wild fragrance of all the flowers, from which the bees have gathered their nectar," one veteran bee hunter said in trying to describe it. It's a sweet aromatic, wild smell, which makes a man hungry for honey whether or not he ever liked it before. Experienced bee hunters with good noses are sometimes able to locate bee trees by the scent of the honey. Its fragrance is distinctly different from that of honey manufactured by tame bees. We sniffed it with pleasure as our tree fell and bounced and lay still.

Soon the air was full of bees. They were the ones who had arrived with their loads only to find their home gone. Other arrivals joined them, and they swept back and forth across the open space, puzzled by the thing which had come upon them. The tree had fallen with the entrance upward and scores of yellow warriors were streaming forth ready to do battle. They circled first around the trunk, their wings singing a war song and their little daggers ready for an instant thrust. Finding no enemy there, they gradually widened their circle until several were buzzing angrily around our heads.

Soon we moved in to take the honey. As we approached the log, the little warriors began to dive bomb us from every side and dotted our clothing with their white stingers. Nor did we entirely escape without feeling their wrath. They searched out every weak place in our garments and drove home their weapons. No soldiers on earth fought with more bravery.

We sawed halfway through the log on each side of the hole,

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Cuts are made above and below the entry to the hive; then a section is split out and lifted, revealing the storehouse of honey. The comb is so well engineered the shock of the falling tree does not damage it.

Some bee trees (below) will yield more than a hundred pounds of dark, fragrant honey. The honey hunter must be well protected (right) against the anger of the bees, who can penetrate an open seam with ease.

Tax Tips for Farmers

"Keeping up appearances" is a legitimate tax deduction. Paint, building repair and fence maintenance are only a few of the expenses that protect a farmer's business investment, yet reduce his income taxes. But his home repairs and maintenance can't be included.

FARMERS work one hour out of every four just to meet their taxes. That's the estimate of the Department of Agriculture. Federal, state and hidden taxes claim the income from 12 hours out of every 48-hour work week. Income taxes make up a large portion of that total tax bill he has to pay.

The Revenue Department doesn't exist to tell you how to save on income taxes. Its job is to collect the tax. Congress sets down the law and it is up to you to take full advantage of it. Finding the legal loopholes is not tax evasion; it's just good business.

You can't afford to wait until the end of the year to think about your income taxes. Tax-consciousness is as vital to your farming operations as crop planning. If you have kept day-by-day expense records, early fall is a good time to check on how you stand for the year. A little careful planning now can save you money. Next January may be too late.

Accounting Not Difficult

Farmers, like any other businessmen, are required to keep records. Do you need any special books for your records? Not at all. A record of income and expense in a dime-store notebook is simple and could do the job for a small farm. Bills should be saved as evidence of expenses. However, simple notations regularly kept in a farmer's own handwriting, in dated order, showing amounts and for what and to whom paid, will stand in any court. Gene Abercrombie, farm management consultant of Groesbeck, Ohio, has reduced record-keeping to a minimum for the farmers he advises. He supplies them with blanks which serve as monthly operating statements. On one sheet the receipts are listed, and separated into dairy products, cattle sales, etc. The other sheet lists expenses for feed, seed and so on. On each sheet, the items are broken down into the same groupings as on the official farmers' income tax form, 1040F. Bills and records of receipts are clipped each month to the operating statement. At the end of the year it is a simple matter to transfer the totals of items to the tax blanks, with all supporting evidence in a compact form for safekeeping. Otherwise the year-end unscrambling can be a nightmare.

Abercrombie says: "Don't let accounting scare you. A farm boy who jots down the cost of a packet of seeds and the cash he gets for selling a few dozen ears of sweet corn at a roadside stand is doing all the essentials of bookkeeping. Farmers hate to keep records. Very few need be kept if you demand a bill every time you buy any farm items, even a nickel's worth of cotter pins. These bills can be kept in an envelope marked for the month. If you don't have the bills, never get up from the supper table without jotting down any money spent for the day. The receipts are generally larger and less frequent and usually in the form of a check with a stub you can detach and save."

Cash or Accrual?

Books may be kept, and income reported, on the cash basis, which is merely a list by dates and items of money spent and money taken in. Uncashed checks or money set aside in dividends for a farmer's use are considered money received. An alternate record system, the accrual method, may be chosen by a taxpayer. It is based on financial obligation rather than the actual transfer of cash. In this method, cash dealings as well as changes in inventory are reported. Expenses and income are included for the year in which they arise, whether paid or not. If you have next year's fertilizer delivered in November, 1956, but hold off payment until February, 1957, the transaction would be handled differently in the two bookkeeping systems. Under the cash method, the fertilizer expense would be listed when paid, in 1957. Under the accrual method, the expense would be listed when the fertilizer was received, at which time you incurred the debt. The same is true of income. The price of a calf sold to a neighbor who paid for it in a later year (or even if he skinned you out of the money which you could eventually write off as a bad debt) would be considered income in your books for the year he took the calf if you use the accrual method. If you use the cash method, you need not report the income until you receive payment from him.

Under each system, essentially the same records are kept. The difference is in the manner of reporting for income tax purposes. The cash method is simplest. The accrual method, while requiring inventories at the beginning and end of the year, reflects the real changes in income better. Farmers operating on the cash basis do well to take inventory every year anyway, to know where they stand and to get a better idea of how efficient their enterprises are being managed. It is then an easy matter to change to the accrual basis if a tax advantage is likely and if permission to switch systems is given by the tax department. Once begun, each method must be continued unless a change is requested and granted.

On the subject of farm books, an efficient Indiana farmer has this to say: "The best thing that I ever did to simplify my farm bookkeeping was to go to an accountant in Lafayette and have him get me up a set of books. The forms are loose-leaf and all my records for the last 5 years are in one place. He gave me the track to run on and it is an easy job to keep the records now. I have him check over my year's book each year and help me with the depreciation schedule. That

The income tax laws give a farmer a big break. But the Federal income tax man often gives the farm owner and tenant a shock when he sharpens his pencil and lays down the law.

is one point where his calculating machine and know-how saves me hours."

A farmer who is building up a purebred beef herd by holding all his calves might easily show a loss for early years and pay no tax if he is on the cash basis, for his expenses would be high and his income low. Later he could have high income from the sale of stock with few expenses to deduct. If he were on the accrual basis, the increase in value of his young stock, as they grew, would be his real income for his labor and would show up each year in his report as he expanded. He would be levelling his income from year to year. Under each method, the amount of income tax paid over a period of years can vary greatly, depending not only on how expenses compare with income, but also on the increased percentage of taxes on higher bracket incomes.

Each system gives some edge. Also each has faults. In any farming operation, the advantages often look good in any one year. The disadvantages tend to unload on you all at once, like a poorly stacked wagon of baled hay.

Most farmers prefer the cash system. Inventories are not needed. There's no need for an appraisal of livestock, grain and other property each year. No taxes are paid on increased inventories. All ex-

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A century ago, 3000 pioneers pulled handcarts across the continent to new homes and farms in the Mormon Zion

Oh, Pioneers

By Grant Cannon

FROM CAMBRIDGE and Dublin and Swansea, from Oudrup and Kuznacht: from England and Denmark and Switzerland, Brigham Young called his Mormon converts to Utah. The poor and the rich were called to give up home and family ties, and even their native language, and face the hardships of farming in this uncharted mountain wilderness. They were called and they answered the call because in their hearts they believed that this was the will of God. These people, who called themselves Latter Day Saints, faced the ordeal as an act of religious self-sacrifice to establish Zion a half world away. Many left their homes believing that they would live to see the Millenium when Christ would come again to this earth to rule for a thousand years before earth and heaven were merged.

Though they left their homes to become farmers in an arid, barren country, few of them had any experience in farming. None were prepared for the life of the pioneer plainsman. But under the inspired spell of Brigham Young's missionaries they left their shops and trades and set out for Zion in the valleys of the Rockies.

It was the year 1856. Nine years before, the first Mormon trek to Utah had set the pattern of ox team and prairie schooner which the wealthier of the emigrants would follow. The poor among them—and most of them were poor—were to make new history. They left Europe knowing that they would be expected to walk from the end of the railroad at Iowa City and to pull all of their belongings in handcarts across the plains and mountains to Utah, some 1400 miles away.

Until 1855, the Mormons had relied on their Perpetual Emigration Fund to help their poorer members make this trip. From this fund they loaned the necessary travel money, with the understanding that the loan would be repaid after the emigrants were settled in Utah. Drouth and a winter that killed thousands of the settlers' cattle, however, had made it impossible for the newcomers to settle their debts. The Fund was exhausted.

If only the well-to-do could make the trek, emigration would surely drop to a trickle. This was not what God had ordered. Brigham Young, who was a man of action and iron determination, would not be stopped by economics. He fell back on an old dream, "If they can't ride to Utah, let the people build themselves handcarts and walk."

In the fall of 1855 the leaders of the church wrote to their European missions "Let all the Saints who can, gather up for Zion, and come while the way is open before them; let the poor also come, whether they receive aid or not from the Fund; let them come on foot, with handcarts, or wheelbarrows; let them gird up their loins and walk through, and nothing shall hinder or stay them.

"In regard to the foreign emigration another year, let them pursue the northern route from Boston, New York or Philadelphia, and land at Iowa City or the then terminus of the railroad; there let them be provided with handcarts on which to draw their provisions and clothing; then walk and draw them, thereby saving the immense expense every year for teams and outfits for crossing the plains.

"We are sanguine that such a train will out-travel any ox-team that can be started. They should have a few good cows to furnish milk, and a few beef cattle to drive and butcher as they may need. In this way the expense, risk, loss, and perplexity of teams will be obviated and the Saints will more effectually escape the scenes of distress, anguish, and death which have often laid so many of our brothers and sisters in the dust.

"We propose sending men of faith and experience with some suitable instructions to some proper outfitting point, to carry into effect the above suggestions; let the Saints, therefore, who intend to emigrate the ensuing year, understand that they are expected to walk and draw their luggage across the plains, and that they will be assisted by the Fund in no other way."

This invitation to struggle and hardship was accepted by hundreds of converts who left their homes and started on their long journey. Between February and June, 1856, 3318 Mormons gathered in Liverpool, boarded old sailing ships, held a last meeting on the deck with their missionaries who admonished and blessed them, and set sail on their great journey. The ships, *Caravan, Enoch Train, Samuel Curling, Thornton,* and *Horizon* took from four to ten weeks to make the crossing. There were deaths and burials at sea and children were born into the hard world of the emigrant. In New York and Boston, where the ships landed, the strangers made their first camps—in warehouses borrowed from the shipping companies. Then they crowded aboard trains—many of them traveled in cattle cars at $10 a head—and got their first view of America through the slatted cattle cars and murky windows of the train. Days later they reached Iowa City, crossing the first railroad bridge to span the Mississippi.

From Utah, Brigham Young, who had been a carpenter before he became a church leader, sent out Chauncey Webb to supervise the building of handcarts, and William Kimball and George Grant to buy the cattle that would go with the

A painting, made by C. A. C. Christiansen 44 years after he made the trek, shows the pioneers making camp at the end of a weary day. The children gather buffalo chips for fuel and food is carried from the supply wagons in the center. In the distance, a group of curious Indians rides up to investigate.

companies. The carts, which had little iron in their construction except for the hooped wheels, carried a light box which was three to four feet long, three feet wide and eight inches deep. The shafts were about five feet long with cross bars for pulling; on the back of the cart was another cross bar for pushing. Some of the carts were covered with canvas for shade, but most of them were open. One of the men who pulled a cart across the plains, J. Rogerson, described them, "The carts were the usual width of the wide track wagon. Across the bars of the bed of the cart we generally sewed a strip of bed ticking or a counterpane. On this wooden cart of a thimbleless axle, with about two and a half-inch shoulder and one-inch point, were often loaded four hundred or five hundred pounds of flour, bedding, extra clothing, cooking utensils, and a tent. How the flimsy yankee hickory structure held up the load for hundreds of miles, has been a wonder to us ever since."

When they reached Iowa City, the emigrants camped in Mormon Grove and the loose travel companies that had shipped from Liverpool together were organized into the semi-military groups that would cross the plains together. As with most Mormon activity, there was no nonsense as to who was in charge. Each of the five companies that crossed the plains in 1856 was headed by a captain. He organized his company and chose his assistants. A handcart was assigned to groups of four or five marchers and an ox or mule drawn wagon was provided for every 70 or 80 people in the company. Round tents, each of which sheltered 20 persons, were loaded on the wagons. Each company herded its own beef and milk cattle to butcher and milk along the route.

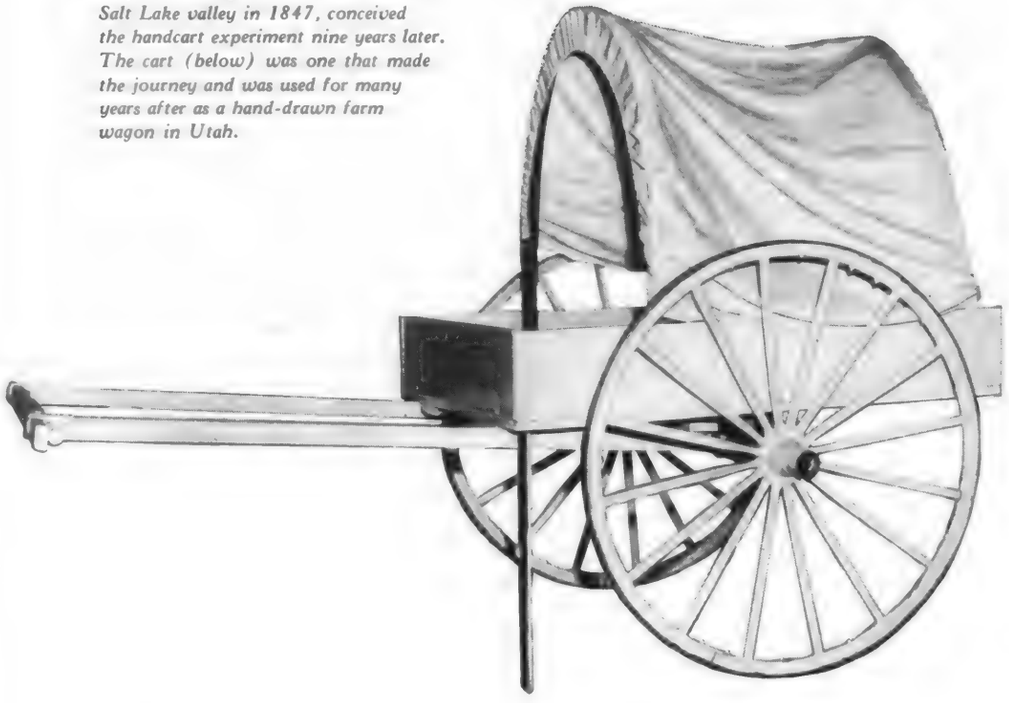
All of the captains in 1856 were Mormon missionaries who were returning with their converts from Europe. All of them had crossed the plains at least twice before and two of them had served in the Mormon Battalion in the Mexican War.

The captains calmed the confusion of travel, taught their charges the rudiments of camp life, and supervised the outfitting. Handcarts were bought at $10 apiece or the emigrants were permitted to work out the price of a cart by building other carts. Supplies and teams were secured; wagons and carts were loaded. Each person was allowed to carry 17 pounds of clothing, bedding, cooking utensils, and other material on the handcarts. The rest of the load was food. Disposing of their possessions to meet the weight limit was a hard thing to do and, as one handcarter put it, "Many thin people suddenly grew fat as they put on extra clothing to hide it from the captain."

The first company to shape up was under the command of Captain Edmund Ellsworth, a son-in-law of Brigham Young. His group of 275 were supplied with 52 handcarts and 4 wagons. They left Iowa City on June 9 and were followed two days later by a company of 222 led by Captain Daniel McArthur. A third company of 300 under Captain Edward Bunker pulled their carts out of Mormon Grove on June 23rd.

In the dusty, rutted tracks left by the ox teams of previous pioneers, the handcart companies pushed across Iowa. This part of their journey was, in a way, a shakedown run to temper them for the travel ahead. Across the 300 miles of Iowa this strange group of tailors and watchmakers, shoemakers, tinkers, mothers and children, old, and crippled folk from the cities of Europe were hardened to the

Brigham Young, who arrived in Great Salt Lake valley in 1847, conceived the handcart experiment nine years later. The cart (below) was one that made the journey and was used for many years after as a hand-drawn farm wagon in Utah.



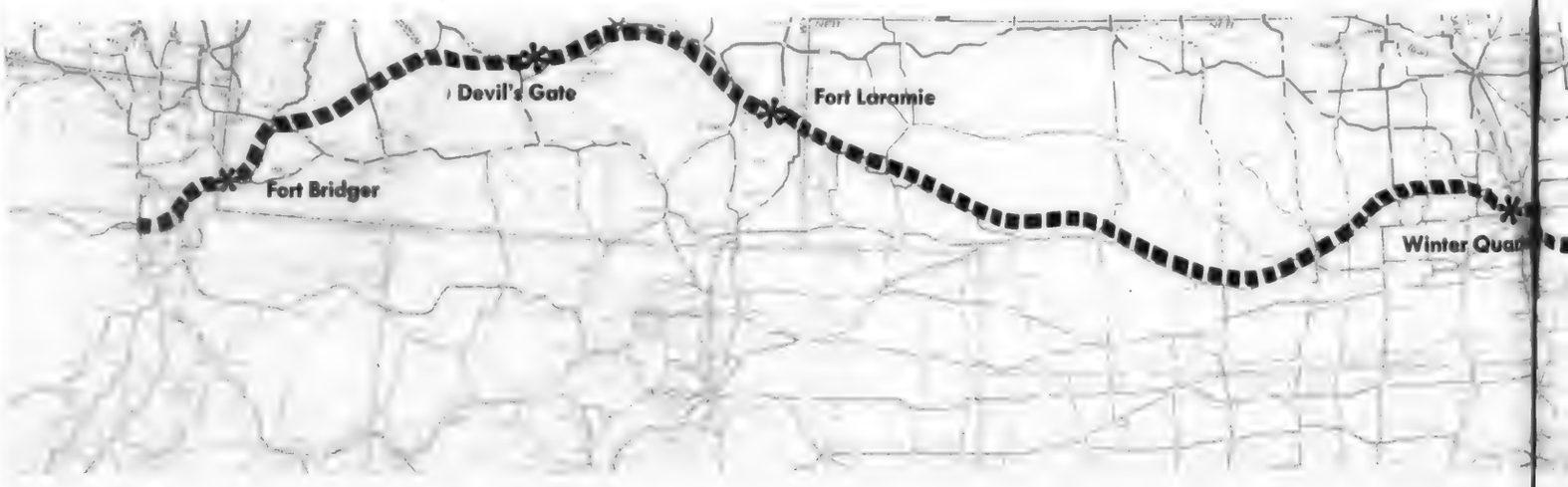
life of the plains and to the job of being draft animals. One man had a wooden leg; several were blind. Dust and flies and blistered feet and unknown fevers, which killed some of them, were their greatest physical problems as they pulled and pushed their carts 20 to 30 miles a day across this partially settled country. Each night the tired people could take pride in the knowledge that they had traveled twice as far that day as an ox-train could go. But their spirits were tried by boys who yelled "Gee—Haw" at them and then rode ahead on their farm nags to watch the girls and women lift their skirts as they forded a stream. In general the farmers were friendly and sold them supplies, which made it possible to travel this first leg of their journey with partially loaded carts.

When they reached the Missouri River at the old winter quarters near Omaha, where Brigham Young and the first band of Mormons had camped ten years before, they stopped to repair their carts and to take on full supplies before they pushed off into the thousand miles of empty plains and mountains that lay between them and Zion. A few, whose zeal had been cooled by cross-country walking left the trek here, but most of them prepared for the big push. Some of the men worked a few days cutting hay, digging wells, building houses, in exchange for supplies. Rings and watches were taken to Omaha and sold or traded. Then the captains ordered their companies to move on.

A day was spent crossing the wide Missouri on ferry boats which had been built by the first Mormon pioneers. Carts and wagons were put aboard and 30 men pushed the boats from shore until they hit deep water and then scrambled onto the boat to avoid a ducking. They camped that night on the west bank of the Missouri and the next morning began their journey across the vast, lonely plains with only the wagon tracks ahead to remind them that others had been here before them.

The first sight of Indians frightened these strangers from Europe who had read

The route traveled by the handcart companies is shown superimposed on a modern road map. Winter Quarters was the jumping off place into the dangerous wilderness of plains and mountains.



of the American savages and their love for human scalps. The Indians turned out to be a friendly band of Omahas who even helped them pull their carts into camp and gave them buffalo meat. One pioneer claimed proudly that the Chief had helped pull his wagon, and though he was a strong and well-fed man, he was sweating before they reached camp.

There were savage Indians on the plains, however. A later company came upon the mutilated bodies of a wagon group who had been massacred by the Sioux. The horrified travelers paused to bury the dead and pray for their salvation.

As they pushed further into the empty plains their supplies began to run out. Food was rationed and hunger became a constant companion. Elizabeth Powell, like many others, deprived herself of part of her food to give something extra to her children who must walk, and to her five-month-old son David, who rode on the cart. Others ate their four-day rations quickly and haunted the supply wagon, begging for more. No one has explained why, in this buffalo country, they failed to hunt and live off the land more than they did. One of the men who made the trek, tells with wry humor of trying to kill a buffalo with a shot gun, but few of them mention buffalo meat as part of their diet.

Their route generally followed the Platte River, but often the trail left the river and information about the location of the next water hole was usually vague. "We often suffered from thirst," one woman recalled. "When we would reach a buffalo wallow, the men would dig for water; often the waiting children would snatch chunks of mud as the men dug, and suck the water from them."

As the tedious days dragged on men and women gave out—dropped in a faint between the shafts of their carts—children who had been pushing from behind held on or simply let go and sat by the wayside. At night the stronger men would go back and bring in the stragglers. One company was delayed for hours while they searched for an old man who had hidden in a thicket so that he would be left to die. Another company waited two days while Robert and Ann Parker searched for their son Arthur: then they were ordered to move on without him. Ann went ahead, pulling the cart, while Robert stayed behind to continue the search. Three days later the anxious mother wept with joy as she saw her weary husband plodding into camp with their son.

Not all the stragglers survived. An old man and a child who wandered from the train were killed by prairie wolves; a boy who stopped to rest was never seen again. Still they pushed on, singing the handcart song with its ironical chorus:

> For some must push and some must pull
> As we go marching up the hill,
> So merrily on the way we go
> Until we reach the Valley—Oh!

Following the North Platte River the pioneers pulled their carts across Nebraska and into the mountains and high plateaus of Wyoming. They left the Platte at what is now Casper, Wyoming, and crossed the Rattlesnake Range and the Granite Mountains to reach the Sweetwater River and then the Continental Divide. The wagons were crowded with the sick; those who faltered, now had to be loaded onto the handcarts and hauled through these rugged mountains by man power. There were men and women who pulled their carts until they died in harness. But the companies pushed on to the Green River, to Fort Bridger, to Echo Canyon, and finally into the valley of the Great Salt Lake. In spite of their hardships and losses these first three companies had traveled almost twice as fast as the normal ox-train and arrived in the Valley with fewer losses than the usual wagon companies. The handcart experiment was announced a great success by the leaders in Salt Lake City.

But the rejoicing was premature. There were two more companies; the two largest which attempted the trek in 1856 were plodding across the plains. None of the travel-wise pioneers of Utah dreamed that anyone would be so foolhardy as to attempt a late crossing with the lightly provisioned handcarts. Those who had crossed before knew how dangerous it was to attempt to conquer the mountains in winter. Yet over a thousand raw emigrants were making that attempt.

James Willie, who was captain of a company of 500, and Edward Martin, who had 575 in his company, were delayed at Iowa City while their handcarts were being built. Willie's company finally pulled out on July 15 and the Martin company followed on July 28. Their carts, which had been hastily thrown together with green lumber, gave them trouble from the very start—later when they pulled them across the dry prairies these delays were to prove disastrous.

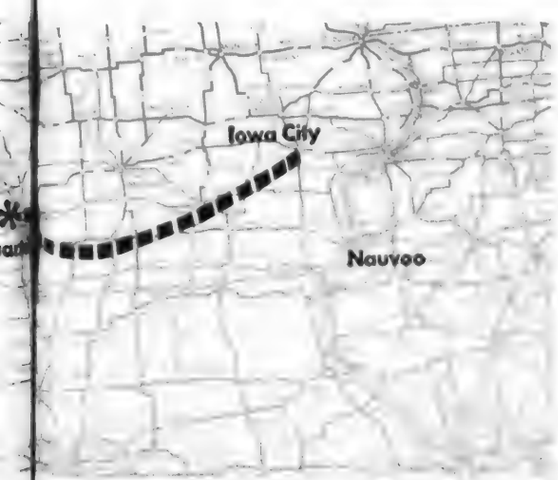
At winter quarters on the Missouri they were urged to stop and wait until the next year. Stop for a year when God had ordered them on to Zion! In the heat of late August, winter and the snows seemed remote; the great majority of them voted to push on. "If we will do our part, the Lord will watch over us."

One of the pioneers, Elder Levi Savage, a returning missionary who knew well the perils of plain and mountain travel, pled with the members of the Willie company. "You are a company of aged people, women, and children," he told them. "Even if you do have strong men among you, you cannot cross the mountains so late in the season without much suffering, sickness, and death." When he was overruled by the people, Savage said with tears in his eyes, "Seeing you are to go forward, I will go with you. I will help you all I can, will work with you, will rest with you, will suffer with you and, if necessary, will die with you. May God in His mercy preserve us!"

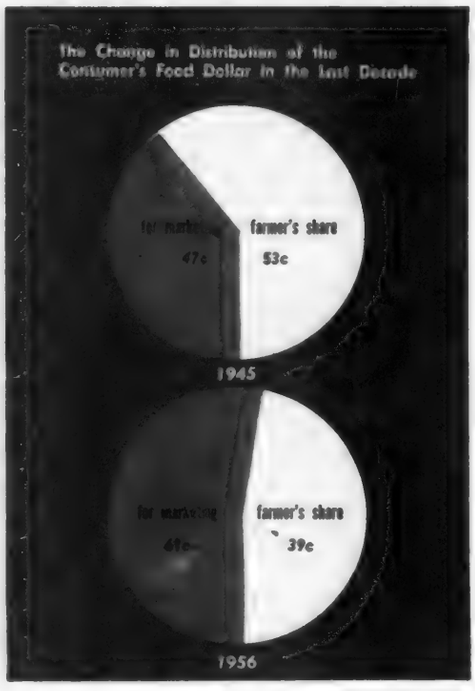
Three hundred miles west of the Missouri, panic swept through the ranks of the Willie company when a bellowing herd of buffalo cut through their long line of carts. A few days later they suffered a disaster that was to cost them many lives later on.

George Cunningham, a member of the company, tells of it. "One night after a long and tiresome day's journey, we turned

(*Continued on page 78*)



All the handcart pioneers knew the pinch of rationed food; the last two companies faced starvation.



The food supply for a family of six for one month is shown in the photograph on the right. There are few luxuries among the 83 items; the staples, bread, milk, meat, vegetables make up the bulk of the cost, $145.83. Of this amount, the farmer received $56.87, or 39 cents on the dollar. In 1945 this food would have cost around $91.66; the farmer's share of the food dollar was 53 cents which would have netted him $48.58.

Are Farmers Getting a Fair Share of the Market Basket Dollar?

IN THE SUMMER of 1956, Betty Kirk, one of those rare housewives who keeps an accurate budget, totaled up her food bill for one month. She found that she had spent $145.83 to feed her husband and four kids. Like many other American wives who push wire baskets through super markets, she wondered how she could make ends meet when she was spending over a third of her income on food. "Congress should stop worrying about the farmers," she thought, "and give some attention to us housewives."

What Mrs. Kirk didn't know was that out of every dollar she spent, the farmer received only 39 cents. What she didn't know may not have hurt her, but it hurts farmers all over the country.

This spread between the price the farmer receives for his product and the price the consumer pays for it over the counter has fluctuated rather widely over the past years. Records of these changes have been kept by economists in the U. S. Department of Agriculture for individual food, fiber, and tobacco crops and for a standard quantity of poultry, eggs, meat products, dairy products, fresh fruits and vegetables, bakery goods, cereals, canned fruits and vegetables, and other miscellaneous products which they term the consumer's market basket. The farmer's share of the food dollar, which has been given so much publicity, is based on the percentage of the retail cost of the food basket that goes to pay the farmer.

In 1945 the farmer's share of the consumer's market basket dollar hit a high of 53 cents; back during the depression year of 1932 it hit an all-time low of 32 cents. When it rides in the mid 40's, the farmer seems to be in a fairly comfortable position. Right now, after ten years of downward sliding, with the single exception of a two-penny upswing in 1950-51, everyone is ready with an explanation as to what has gone wrong. If they have no explanation, they are at least ready to point a finger at the culprit who caused the widening of the spread.

The villains are many and depend somewhat on who is pointing the finger. Those usually accused of robbing the farmer of his fair share are the "profiteers" in packing, food processing, wholesaling, and retailing who are taking a bigger slice of the retail price than before; organized labor, which has increased its pay at the expense of the farmer; the hucksters in advertising who have siphoned off their cut; the railroad and truck owners who have pressured the Interstate Commerce Commission into raising transportation rates; and even the housewife who demands more built-in maid service, such as ready-baked biscuits and chicken pie that only

need be thawed and warmed. Some observers, on the other hand, feel that there is more to the problem than the discovery of a villain. We agree.

In our society we have always tried to buy as cheaply as possible and sell at as high a price as the market will bear. This applies to farmers who buy and sell as well as to the men who buy from farmers. Supply, demand, and competition enter into each transaction. If the supply is limited and there is competition among the buyers, the price is bound to go up. But if the reverse is true, no buyer in his right mind is going to say, "I'll bid a little high today; the farmers are having a tough time."

When it comes to selling, the packers, wholesalers, and retailers are again under the gun of competition. If they begin to gouge out too great a profit from any item, they'll soon find new men in the field selling the same stuff for less.

"That is a Jim Dandy theory," the farmer says sarcastically, "but just take a look at the profit and loss sheets of the big food handlers. Their profits have gone up steadily for the past ten years while our prices have been going down. Those dividends they pay don't come from saving box tops." True, but when you analyze these profits it becomes apparent that the increase in profit comes mainly from increasing the amount of goods handled. The profits on some single items have been held at a uniform level and in some cases have been lowered a bit. This situation has been brought about by increased population and in many cases by certain of the food handlers acquiring a larger share of the market. The dangers of monopoly are here—but that is another story.

Abundant supplies of farm goods have lowered farm prices and food prices, in most cases, have followed them down, but not at the same rate. This is particularly true where there is a great deal of processing involved in transforming the farmer's product into saleable food. The wheat that goes into a loaf of bread that sells for 20 cents is worth around 3 cents. If wheat fell a disastrous 33 per cent it would mean that bread would sell for 19 cents a loaf—a 5 per cent drop. In actual fact, wheat has gone down in price over the past eight years and the price of bread has gone *up*. Because of the other increased costs, bread would have gone up even if the farmers contributed the wheat for free.

Since the depression years, when organized labor numbered around two million members, the trade-union movement has grown like a summer thundercloud, over-

(Continued on page 128)

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TREES

(*Continued from page* 41)

She mentioned the fact to an obliging timber buyer who traded her 19 twenty-four-foot sycamore beams for 9 beautiful big black walnut trees. She probably got 1/20 of the value of her trees.

Pulpmills usually will buy nothing smaller than 4 inches in diameter at the small end, nor more than 22 inches. Trees of larger diameter can be split. Pieces smaller than 4 inches may fall through the slits in the de-barking drum; those over 22 inches choke up the chippers.

Pulpwood, in those areas of the south where there is a steady year-round demand for it, is now bringing $3 to $5 a cord on the stump, $12 to $15 delivered at the mills. Many of the mills are now buying by weight rather than by the measured cord in the case of wood delivered to the mill by truck.

Sales Agreement

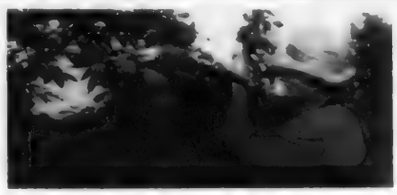
In selling standing timber, all the terms of the agreement should be incorporated in a written agreement. One of the most important terms in the contract is the time limit, which keeps the buyer from dragging out the operation indefinitely. The agreement should also contain a clause as to the care of the residual stand.

Some of the methods of sale and their limitations follow:

(1) Sale of "all the useable logs." Usually the buyer will take only the cream of the crop and leave everything else.

(2) Diameter limit cut. All trees, for example, are sold which are 16 inches at the stump. This is a rather common method of sale, but far from the best. Some trees, like the beech, flare out at the stump, others run straight almost to the ground. This type of contract can be improved by specifying the trees by species and requiring that the measurement be made at a certain height above the ground. For example: "All trees 16 inches and up in diameter 14 inches above the ground on the uphill side."

(3) The log scale method. Probably the fairest method for both buyer and seller. The operator cuts selected trees, measures the small end of the log. This measurement and the length of the log determine



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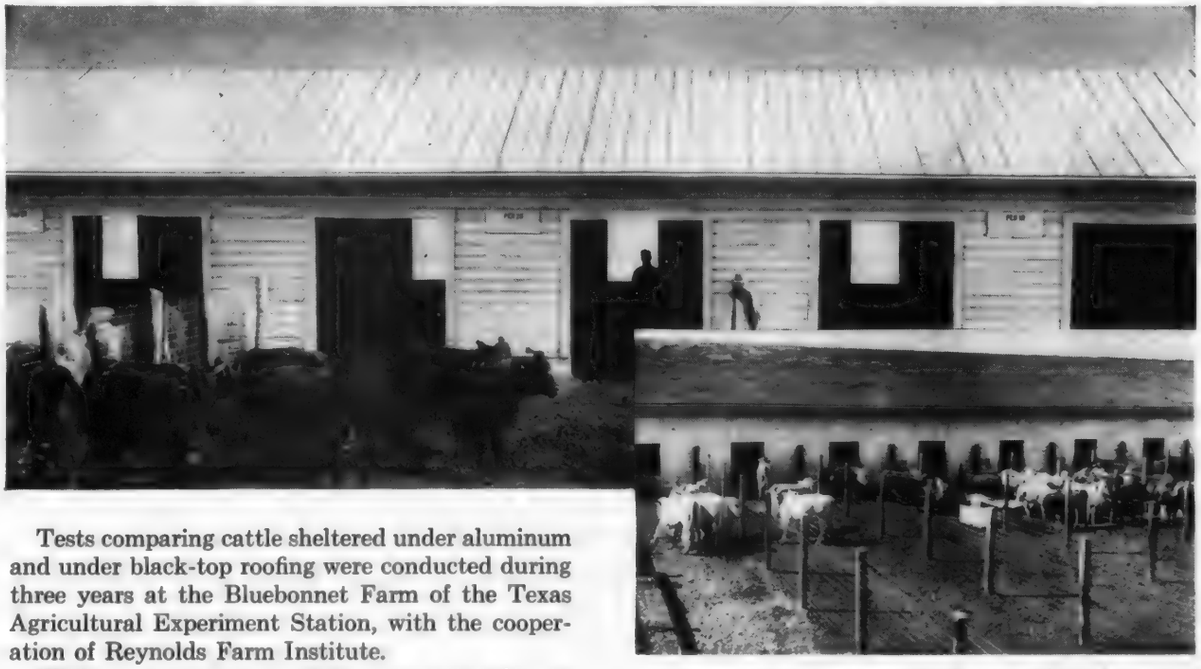

Tests comparing cattle sheltered under aluminum and under black-top roofing were conducted during three years at the Bluebonnet Farm of the Texas Agricultural Experiment Station, with the cooperation of Reynolds Farm Institute.

While no statements made here are to be taken as endorsement by Texas A.&M. of any product, test results definitely showed cooler temperatures and better weight gains under aluminum. In the 3-year period of testing, the average yearly gain was 10 lbs. per head under aluminum. In one 140-day feed test period, weight gain was greater by 25 lbs. per head.

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(Test barns are identical structures 25' x 177', one black-top roofed as shown in smaller photo, the other aluminum roofed.)

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☐ 1,500-bird Pole Laying House (expandible)	1.00	☐ *L-Shaped Cattle Shed	.60
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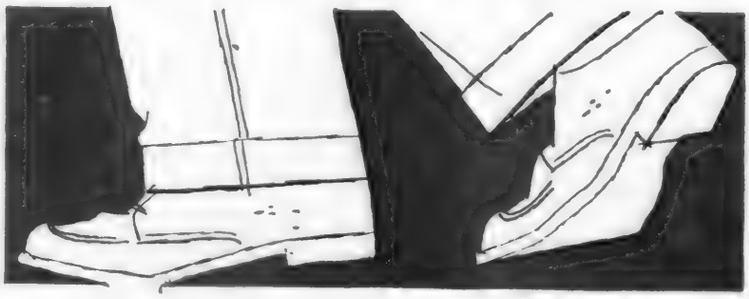

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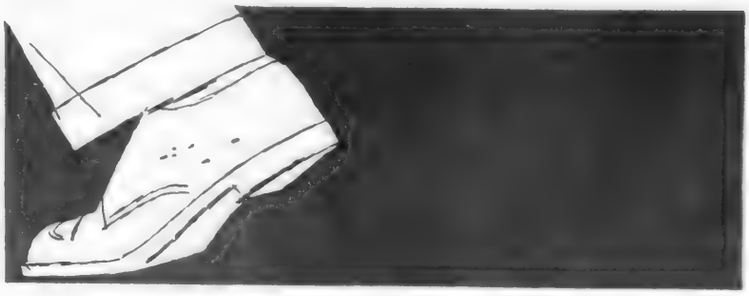

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the number of board feet. The owner is paid on this basis.

(4) Lump sum sale. The buyer agrees to pay the seller a lump sum either for the timber he can use or for the marketable timber. The seller knows exactly what he is going to get, but the practice is like selling livestock without weighing them.

(5) High grading. Only the very best trees are sold. This can leave the seller with a stand which will be hard to sell to the next man who comes along.

High value timber, such as veneer logs, should only be sold to a high value market.

No farmer is going to get rich with tree crops. But he will find his trees a real solid investment if they are well managed. Alex Crowell, one of North Carolina's 100-bushel corn growers who also has a few score acres in timber, points out how little effort tree management requires. "What I like about trees is they take so little work," he says. "I just sit there and let them grow. The other fellows cut them and send me the checks. It's just like letting time work for you."

OH, PIONEERS

(*Continued from page* 73)

out the oxen and the cows to feed and a large herd of buffalo came running toward them. The oxen ran off with the buffalo and although we hunted the country over for miles, we never found them. Then one of the terrible prairie storms blew up. It was dark as pitch and all hands had to hold on to the tents to keep them from going up like balloons. The heavy rain soon flooded the prairie. When morning came, all the able-bodied men and boys turned out again to look for the cattle. The search was kept up for a week and often when we thought we could see old Brin and Nig or Buck and Bright they would prove to be nothing but old buffaloes. Provisions were getting very short and with a six or seven hundred mile journey before us, we knew that we must move on or perish. We transferred our provisions from the wagons to the handcarts and hitched the thirty milk cows

SAVE ½ ON FARM BUILDING COST WITH NATIVE LUMBER

The Belsaw ONE-MAN Sawmill produces smooth, true-cut lumber from any farm wood lot . . . Easily handles logs 8″ to 36″ in diameter. Low-Cost Belsaw can be powered with tractor or old auto engine. Requires no previous experience. Send postcard today for complete information on how you can save ½ on farm buildings and for price on the Belsaw ONE-MAN Sawmill.

BELSAW MACHINERY CO

3157 FIELD BUILDING

315 WESTPORT ROAD KANSAS CITY 11, MO.

"WITH OUR EATON 2-SPEED AXLE—

EIGHT YEARS OF RUGGED HAULING WITH NO REPAIR EXPENSE"

...reports Spencer Hopt, Cooksville, Illinois, farmer

"FOR THE past eight years," says Mr. Hopt, "the Eaton 2-Speed Axle has given us greater efficiency in our rough farm hauling. We have three farms—totaling 560 acres—within a ten-mile radius. Hauling crops, cattle, feed and a variety of supplies over this wide spread calls for power, speed and economy. Our Eaton-equipped Dodge truck fills the bill exactly.

"We often operate under the most rugged conditions a truck could meet—pull across soft fields carrying heavy loads without ever bogging down or getting stuck. The low-gear range and positive pulling power of the Eaton 2-Speed gets us through every time. Even under a beating like this, our Eaton 2-Speed has never failed us.

"The dependable, high-speed truck performance we get on the highway with the Eaton 2-Speed saves valuable time. Our truck piles up plenty of mileage, but gas and oil consumption are always low. In fact, we're getting better mileage on less gas and oil—and putting less strain on the motor—than we ever thought possible. It all adds up to this: we couldn't operate profitably without an Eaton 2-Speed Axle."

You'll find better truck performance and bigger savings wherever Eaton 2-Speeds are on the job. Ask your dealer for a demonstration—now.

"OPEN ROADS OR SPONGY FIELDS—our Eaton-equipped truck takes them in stride," says Mr. Hopt. "With the Eaton 2-Speed Axle, we get top truck performance year after year, realize sizable savings in gas, oil and maintenance costs."

DODGE DEALERS Harley M. Boles and W. M. Hoover, co-owners of the Boles-Hoover Motor Company in Chenoa, Illinois, are strong boosters for Eaton 2-Speed Axles. "An Eaton 2-Speed," they agree, "meets the toughest field or highway conditions. The more versatile gear ratios, the ease of driving, the economy under heavy loads—make Eaton 2-Speed Axles a wise investment for any farmer."

MORE THAN 2 MILLION EATON AXLES IN TRUCKS TODAY

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2-SPEED TRUCK AXLES

PROJECT ADEQUATE ROADS: New and better roads are needed badly. Help support the modern highway system America must have to keep pace with its growing economy.

How To Put Trees

One farmer made $1342 off 3 acres of idle land and enriched his soil bank, too.

EVER dreamed of striking oil or finding uranium on your place? Do you know that the *trees* on your farm can be your gold mine? Here's a crop that will multiply your earnings seven to ten times per acre and at the same time lets you follow the government's Soil Bank Program to the letter. The unsatisfied market for wood is making both big and small farmers richer—putting the struggling farmer back on his feet. This year, when a percentage of your land must lie fallow, new sources of income must be found. Trees are the answer.

Investment Small

It's easy to farm trees. The job can be done mostly with equipment you already own. Actually, only 3 major pieces of equipment are needed—your tractor, your truck and a chainsaw.

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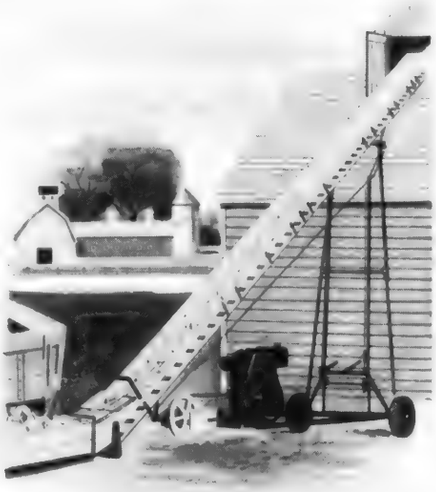

CLINTON'S HEAVY-DUTY TRIO

Clinton manufactures 19 basic models from 1¾ to 9 hp.

Dependable Clinton Gasoline Engines are quick starting every time regardless of farm area, climate or weather condition. Special anti-stalling characteristics built into every Clinton keep it operating smoothly even on the toughest field jobs. When you're buying new gasoline powered equipment, make sure it has a Clinton Gasoline Engine. When replacing a worn out engine—replace with a quick starting Clinton. They're interchangeable with any small gasoline engine on the market.

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Over 9000 Clinton Service Centers Located From Coast To Coast

See The Yellow Pages Of Your Telephone Directory

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Engine Division • Maquoketa, Iowa

World's largest manufacturer of the most complete line of gasoline engines.

In The Bank

For as little as $200 to $300 invested you're in business making good money off so-called worthless land. One Indiana farmer "cleared" $1342 off 3 acres of wasteland the first year. Another Sangamon County (Illinois) farmer sold a black walnut stand for $3200. He was going to put in corn until he found out just how valuable his timber was.

How To Start

Look around your farm. *See* the forest for the trees. Then visit your County Agent and your Clinton Chainsaw Dealer. They will be glad to tell you about the growing market for lumber in your area. They'll tell you how to cut, what to cut and when to cut. And your Clinton Dealer will let you try out a Clinton Chainsaw on your own place free. See the Clinton Chainsaw Dealer... talk with your County Agent... and get started on your own Soil Bank Woodlot Program as soon as possible. Start making regular tree income deposits in your bank.

You can make extra dollars out of every stand by simply cutting every tree closer to the ground. You'll find hundreds of tips like these in Clinton's free booklet offered below.

The Soil Bank Program is a boon to all farmers with woodland. This idle land can increase your income seven to ten fold.

Free Booklet Offered to Farmers

Big 48-page booklet tells you about trees and their place in the Soil Bank Program. Gives complete woodland plan from felling to selling. Write Clinton Machine Company, Department RP-1, Chainsaw Division, Clinton, Michigan for your free copy.

CLINTON

EVERY FARMER WILL FIND THE CHAINSAW HE NEEDS IN THE COMPLETE CLINTON LINE

THE ONLY CHAINSAW THAT OFFERS YOU A LOW COST ENGINE REPLACEMENT PLAN...

3 Direct Drive Models

CLINTON WOOD WHITTLER: Quick starting! Float-type carburetor. 16 to 20-inch cutting capacity. Starting at..... **$159.50*** 16-in. bar and chain

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CLINTON D-4: Quick starting! Diaphragm carburetor. 16 to 26-inch cutting capacity. Starting at..... **$214.50*** 16-in. bar and chain

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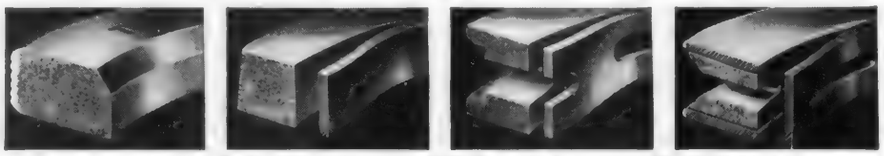
Sealed Power KromeX Ring Sets for tractors, trucks, and passenger cars are developed in close co-operation with the engineers who design your engines. These sets use chrome on top compression rings and oil rings to give you longer wear and more power, using less oil and less fuel. They are the best ring sets you can buy! Use Sealed Power KromeX Ring Sets when you re-ring!

Every major engine builder uses Sealed Power Piston Rings!



Every Sealed Power KromeX Ring Set is individually engineered for a specific installation. These are four of the most popular Sealed Power rings.

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to the wagons to haul the sick and the children who were not able to walk."

With his beef cattle and oxen gone, Captain Willie took inventory of his supplies and announced the bad news. Rations must be cut to 15 ounces a day for each man, 13 for women, 9 for children, and 5 for infants. The captain, who was affectionately known as Father Willie to the company, had further harsh news. They must redouble their efforts to make all possible speed. Willie, who had crossed the plains in 1847 and again in 1852, knew that they were in serious trouble. His only ray of hope came when a fast wagon train of returning missionaries passed the company and promised to send back help as soon as they reached Great Salt Lake Valley.

At Fort Laramie, Captain Willie was able to buy two tons of flour for his starving people and on they went. Clothing, blankets and quilts had to be sacrificed to lighten the loads, even though frost formed every night and the streams they forded were covered with skim ice.

"The nights now began to get very cold and feed was poor, also our provisions were running out fast," George Cunningham wrote. "Starvation looked us in the face. We were put on rations of six ounces of flour each per day and nothing else. The old and the weak began to die for want of proper food, and a great many of the young and strong ones soon followed. I, myself, helped to bury ten to fifteen in a single day. We who could stand it were barely kept alive and after several weeks of this ration it was reduced to half this amount. I stirred my three ounces with some water and gulped it down.

"To make things worse we were caught in a heavy snowstorm on the Sweetwater. It was extremely cold and the last of our flour was gone. The captain ordered that every critter in the train be killed as needed, but they were nearly as poor as we were. However, we boiled the bones and drank the soup. Every particle that could be used was taken, even the hide was rationed and after scorching the hair off, we could roast it a little over the coals and cut it in small pieces and it made what we considered a delicious supper."

Those who were still able tried to help the dying. Mothers pulled their carts and

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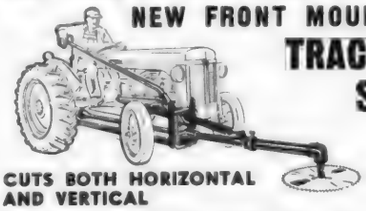

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carried their babies inside their clothes to give them the warmth of their bodies. Christina Wicklund, seeing that her friend Lollie Anderson was ill when they made camp one night, offered to sleep with her to keep her warm. When she woke up in the morning, Christina found that Lolly was dead, her hair frozen to the icy ground so solidly that it had to be chopped free before she could be buried. Christina sorted through Lollie's few belongings and selected a small pair of sewing scissors and a quilt to carry on to Zion.

A hundred miles behind the Willie company the Martin company ran into their first snow storm as they made their final crossing of the Platte River. During three days of heavy snowfall they pushed on toward the Sweetwater. "We traveled, or almost wallowed through the snow," Mrs. Aaron Jackson recalled later. "My husband had for several days previous been much worse. He was still sinking and his condition now became more serious. He tried to eat but failed. He had not the strength to swallow. I put him to bed as quickly as I could. He seemed to rest easy and fall asleep. About nine o'clock I retired. Bedding had become very scarce so I did not disrobe. I slept until, as it appeared to me, about midnight. I was extremely cold. The weather was bitter. I listened to hear if my husband breathed, he lay so still. I could not hear him. I became alarmed. I put one hand on his body and discovered that my worst fears were confirmed. My husband was dead. I called for help to the other inmates of the tent. They could render me no aid." The next morning they buried Aaron Jackson with 13 others in the snow; the ground was frozen too hard for the emaciated men to dig.

"A few days after the death of my husband," Mrs. Jackson continued, "the male members of the company had become reduced in number by death, and those that remained were so weak that on reaching the camping place at night there were not sufficient men with strength enough to raise the poles and pitch the tents. The snow lay several inches deep upon the ground. The night was bitterly cold. I sat down on a rock with one child in my lap and one on each side of me. In that way I remained until morning."

(*Continued on page* 84)

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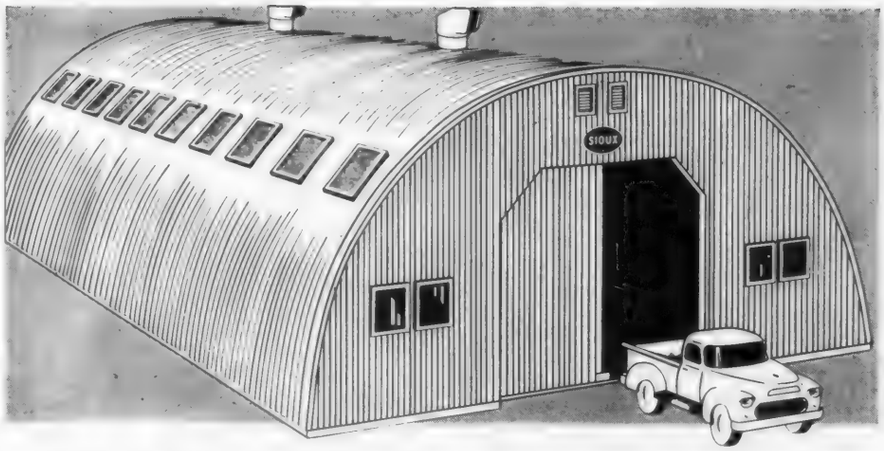

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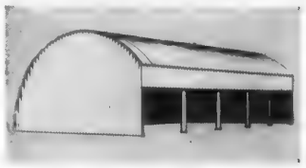

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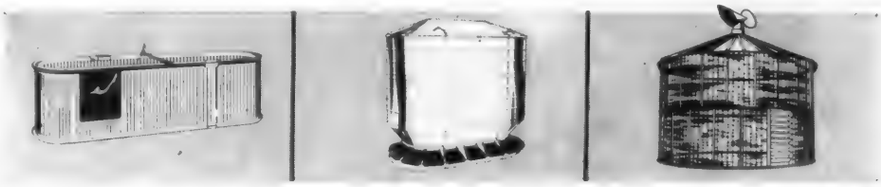

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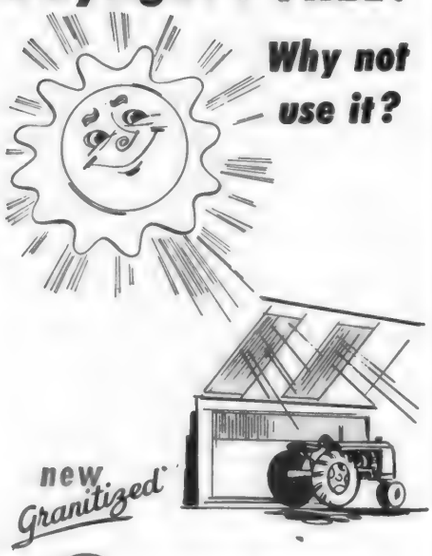

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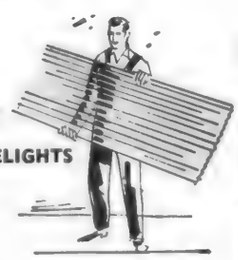

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They were nearing the end of human endurance. Their food was almost gone. They were growing too weak to protect themselves from the cold. And they were still 300 miles from Salt Lake City; three hundred miles of snow and ice, of sheer mountains and rugged canyons. Each day the burial party laid more of their numbers on the frozen ground and covered them with snow. And in his heart each wondered how long he, himself, could last.

Help was on its way, but this they could not know. On October 3rd, Brigham Young wrote to George Q. Cannon, a younger leader of the church, telling him of the unqualified success of the handcart experiment. Three companies of pioneers had pulled their belongings from Iowa to the valley and had arrived faster and in better condition than wagon companies.

The next day the returning missionaries brought him his first word of the last two companies just as he was about to preside at the semiannual conference of the membership of the church. Brigham Young immediately adjourned the conference, telling the people that he wanted twenty wagons and 40 men to volunteer to leave immediately and others to follow until every soul had been brought to the city.

These mountain men knew that even a well-supplied wagon train would have great difficulty reaching the handcarters, but they volunteered. As quickly as wagons could be loaded, they started on their rescue mission through the snow, and a fast express was sent ahead to let the sufferers know that help was on the way. As soon as the news of the rescue party reached Captain Willie, he mounted a mule—until then he had insisted on walking—and rode toward the wagons for two days to guide them to his party. Many of the numbed emigrants he left behind seemed unaware that help was near.

George Cunningham, who was with the Willie company, recalled the arrival of the rescue wagons. "Everybody stood around the fire with gloomy faces, as if in a death trap, when all at once flashed into my mind my dream of the previous night as follows: 'That a number of wagons loaded with provisions were soon to meet us.' How joyfully I related my last night's dream in detail. My mother told them that she knew it would come true, as I was promised that gift in my blessing. And to our great pleasure every word was fulfilled. I can recollect I was in the lead of the crowd, feeling quite inspired by my dream. At their approach I roared out, 'See! See them coming over that hill!' "

The first wagons left supplies with the Willie company and urged them to push on over the trail they had broken through the snow. Then the rescue train went on to the east to find the Martin company.

The Willie company, their clothing starched with ice, their feet wrapped with frozen sacking, pushed and hauled their carts forward. As they passed the 8000-

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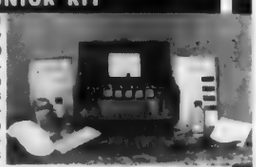

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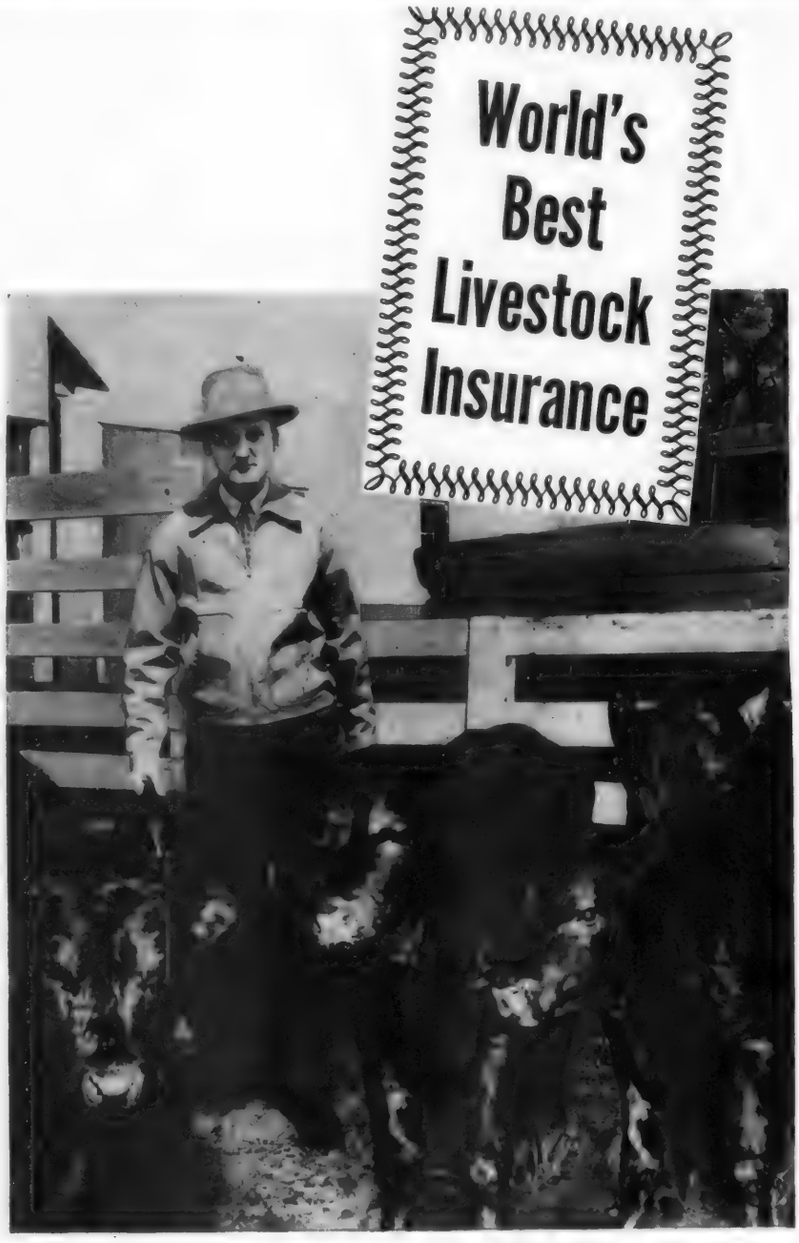
foot altitude of the Continental Divide the weather moderated. They received supplies from oncoming wagons, and finally, on November 9, they dragged their carts into Salt Lake City. They were a tragic, frozen lot of suffering people. A few of their number died on the plains, but most of the 69 who failed to reach Zion died in the frozen mountains.

Dan Jones, who was one of the first to reach the Martin company, described them as they pulled their carts through the mountain snow: "A condition of distress here met my eyes that I never saw before or since. The train was strung out for three or four miles. There were old men pulling and tugging their carts, sometimes loaded with sick wife or children—women pulling along sick husbands—little children six to eight years old struggling through the mud and snow. We helped as many as we could into camp on Avenue Hill. This was a bitter, cold night and we had no fuel except very small sagebrush. Several died that night."

With fresh supplies and clothing they trudged on to Devil's Gate Fort where they realized that the handcarts could go no

(*Continued on page* 142)



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When your farm animals are doing well, he can help you to keep them that way with his trained, scientific knowledge.

And when disease strikes, his service is invaluable in saving sick animals, preventing losses. So many livestock diseases look alike. Yet there is a world of difference in the medicines and methods of treatment which should be used. What can cure in one case can kill in another. Don't guess or take chances. At first signs of any disease outbreak, call your veterinarian. His science and skill can save livestock, and save you money.

Your veterinarian's service is the world's best livestock insurance. It pays off many times over in healthier stock and better profits.

This message in the public interest is sponsored by American Foundation for Animal Health

THE REVOLUTION IN FARMING

(*Continued from page* 33)

4,345,000 by the end of last year. Grain combines, of which there were fewer than 200,000 in 1940, now number 1,000,000. Corn pickers increased more than 6 times from the 110,000 that were in use in 1940. The first statistics on pickup balers date from 1942 when 25,000 were counted. By 1955, 450,000 of them were in action. The 200,000 field choppers in use last year was 10 times the number when the first count was taken in 1945.

Machinery is only one barrel of the modern farmer's production gun. The other is fertilizer. Until 1942, American farmers had never reached the 2 million ton mark in the use of the three principal plant nutrients. Last year they used a whopping 6 million tons.

The individual worker is also breaking records. Farm output per man-hour the country over has jumped from an index of 69 (1947-49=100) in 1940 to 130 in 1955. The size of the average farm has increased to a record 242.2 acres and the big are growing bigger. There were only 4,782,000 farms in 1954 as against 6,100,000 in 1940 (these figures include everything from 3 acres up which market at least $150 of produce per year). But the 264,000 farms of 500 acres or more in 1940, increased to 322,000 by 1954.

The increase in size coupled with the general inflation of the past years has upped the average value of the American farm from $5,500 in 1940 to almost $20,000 in 1954.

Cost of equipment has skyrocketed. In 1940 farmers had $3.2 billion invested. By 1955, they found themselves with tractors, trucks, automobiles, and assorted equipment worth $17.7 billion. Each farm worker has behind him an average investment of more than $14,000 in real estate, livestock and machinery.

While machinery and fertilizer are the main tools of the revolution, farmers could never have made their astounding records without the improved varieties of crops and livestock which the geneticists have put at their disposal. These things do not

Bill De Marco, introducing "his friend" who's always ready to help when needed.

As far as the eye can see, this 4-inch lateral with 44 sprinkler heads, lays down one inch of water per hour.

Double Potato Yield with Sprinkler Irrigation

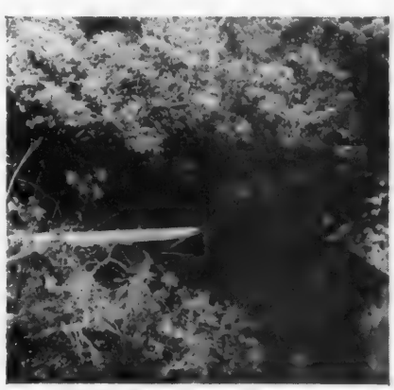
DE MARCO BROTHERS OF HAMMONTON, NEW JERSEY, MOVE WATER 5,700 FEET TO IRRIGATE SWEET POTATOES

The De Marco Brothers in Hammonton, operate one of New Jersey's biggest sweet potato farms. At this location, they have over 125 acres planted in sweet potatoes . . . all irrigated with one sprinkler system.

A Marlow pump is used to lift the water from an open stream and carry it through 4,000 feet of 6-inch main and 1,700 feet of 4-inch lateral. A total of 44 sprinklers lay down one inch of water per hour. Manufacturers strongly recommend conservative engine speeds. However, here's a real endurance testimonial... the De Marco unit has run full throttle for two seasons with no maintenance for pump or engine . . . *truly remarkable operation.*

The De Marcos firmly believe that sweet potatoes must be irrigated. Their production of 300 bushels per acre is double that which would be expected without irrigation. Bill De Marco claims that unless irrigation is used, farmers would have a better chance playing the horses. The Atlantic City race track is nearby.

See your Marlow dealer if you you want to take the "gamble" out of growing. He's an irrigation expert and can help you plan a dependable irrigation system. For complete information and the name of your Marlow dealer, write to Marlow Pumps.



Water is lifted from this stream through 50 feet of suction pipe before it reaches the pump.

Pumped at 130 pounds pressure, water races through 4000 feet of 6-inch main, laid along this wooded road.

Marlow PUMPS

MARLOW PUMPS

Division of Bell & Gossett Company

RIDGEWOOD, NEW JERSEY

Morton Grove, Illinois Longview, Texas

Power by
HERCULES

Two of the many different types of farm equipment with "Power-by-Hercules."

Farm equipment owners know that "power-by-Hercules" means dependable service, long-life operation and assurance that their equipment will provide "top-notch" performance. They know that they can "count-on" the name HERCULES to give them the best in gasoline or diesel power.

Talk engines with any Hercules owner. He will tell you that for reliable day-in, day-out operating economy, Hercules Engines are unequalled.

"Power-by-Hercules" has been an important part of the farm equipment industry for over forty years—since 1915. Constant research and recent developments will add new meaning to "power-by-Hercules" in the agricultural industry.

Look for . . . "power-by-Hercules" on farm equipment. It's the product of Engine Specialists Since 1915.

GASOLINE . . . DIESEL . . . GAS

Engine Manufacturing Specialists Since 1915

HERCULES ENGINES

HERCULES MOTORS CORP., 113 Eleventh St.,S.E., Canton, O.

lend themselves to precise measurements but the statistics on just one crop—corn—give an indication of the progress which has been made. Hybrid corn was introduced into the United States in the early 1930's. In 1933, only 1/10 of one per cent of the corn acreage was planted to these improved strains. By 1955 almost 90 per cent of the corn fields were in the hybrid camp. Corn yields during this 22-year period practically doubled.

Midwest farmers who used to rejoice at a 20-bushel yield of wheat now feel they have to have a good alibi to explain anything less than 30; bigger and better clovers and more potent grasses have transformed pastures and meadows, while feed conversion ratios, particularly for poultry and swine, have shown consistent and substantial improvement.

Pounds of pork per sow have been increased from 1756 to 2118 in the last twenty years; pounds of milk per cow have gone up from 4184 to 5512 and the average hen is now laying 184 eggs per year as against 122 twenty years ago.

It takes only about 295 pounds of concentrate feed today to produce 100 pounds of broilers. In 1935 it took 420 pounds to do the same job.

Even in the business of weed control there have been fantastic goings-on. It has been estimated that a single chemical worker making 2,4-D weed-killer is equal to almost 800 men chopping weeds with a hoe.

This is the story of the revolution in agriculture told in cold figures. Every farmer sees it through a different pair of eyes. Here is what it means to a few representative individuals.

A Case in Point

Hugh Pinkerton, Union County, Indiana, is a typical mid-century farmer. Hogs are his mainstay. Born in the early 20's on the farm he now operates, he has expanded the original 160-acre tract into 360.

Why the expansion? It was a typical situation. Like his neighbors, Pinkerton mechanized rapidly after the war. Suddenly he found he could farm many more acres than he owned. In 1947, he added an adjoining 80 acres to the homestead; last fall he picked up an additional 120. "I need the extra corn land," he explains, "and the only thing extra this is going to cost me beside taxes and interest is fertilizer and seed."

Pinkerton recalls that when he was a boy, the 160-acre farm was worked with 9 to 12 horses; all the corn was shucked by hand. Today, with four tractors, a 10-foot self-propelled combine, and a complete line of equipment to take his crops from ground breaking to harvest and even grind it for feed, he is known to the assessor as "the man with the most machinery in the township."

He says, "Ten years ago our only tractor was a WC Allis-Chalmers. We're still using it, but only for light work. Used to be we'd have corn plows on her in the busy season, then we'd take the plows off and hitch on the mower, cut a little hay, then switch back to the plows to cultivate a little more corn. Now we put the mower on this tractor and leave it on for the season. We do all our plowing with a big Diesel job. It's a real fuel saver. We use it to grind and bale, too. Our second big tractor works right along with the Diesel on the heavy jobs and we have still another tractor on which we keep either a manure loader or a sprayer, according to the season."

Looking ahead, the Indiana hog raiser believes the day is rapidly approaching when the corn picker will be as obsolete as the binder. "I think it's not going to be too long before the plant breeders give us dwarf corn," he predicts. "Maybe the ear will be where the tassel is now and it won't grow more than forty to fifty inches high. Or maybe these new hybrid grain sorghums will move in and take over the Corn Belt.

"Anyhow, grain sorghums, dwarf corn, or our regular corn, combining or field shelling is the coming thing. Why should a man go to all the extra work of picking the corn, putting it in the crib, taking it out, shelling it and putting it back in a bin when he can shell it right in the field, dump it in the bin and be done with it? Of course, this means he must have tight storage and very likely a drier. But he'll have them."

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Here is what *Registered* SHUR-RANE means to you:

You can be positive that your SHUR-RANE Sprinkler Irrigation System is correctly designed to your farm and that it will do a fine job for many years. But, that's not all! When you have problems on how to use it, *you receive help.* When you need parts or additions, *they are ready.* When you need service, *it's there.* When you need specialized information, *you can get it.* New techniques and developments *are made available to you.*

You can depend on your SHUR-RANE dealer because he is selected and trained by an old, well-established firm and he will build his future with you.

Your SHUR-RANE dealer offers you the most advanced couplers and fittings on the market and selects for your exact needs from the most complete line today. Every part is warranted.

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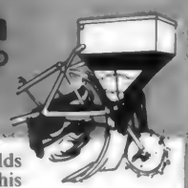

... greater yields per acre with this unique fertilizing subsoiler ... single operation shatters and fertilizes subsoil ... built with stainless steel working parts.

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FARM TOOLS DIVISION

PITTSBURGH FORGINGS COMPANY

Thorn Street, Coraopolis, Pa.

Pinkerton thinks that big progress will come in feeds. "We have seen more new developments in feeds in the past two years than in the ten previous," he says. He looks for the increased use of antibiotics, for more efficient mixtures for baby pigs and sows.

On productive capacity he believes there is no limit. "Right here on this farm we have doubled our wheat yields in the past five years. With our new methods and an almost unlimited supply of cheap fertilizer it's hard to put any limit on what we can raise on an acre of land."

What will all this mean in dollars and cents? "It means it's going to take a whale of a lot of capital for a man to get into, or stay in, farming. If a man doesn't have good credit, he'll be in bad shape," is the way Pinkerton sees it.

Oklahoma Cowman

Close to Fairland, Oklahoma, is the 2300-acre spread of the Ogeechee Farms of Otha H. Grimes. Long-legged Glenn Butts, a cowman through and through, is the manager of this spread. He views the immediate future with optimism. "I'm not looking for any boom," he says, "I just think the cattleman is over the roughest piece of the road for awhile. I think we can expect better weather and better production and I believe demand for our product is going to pick up.

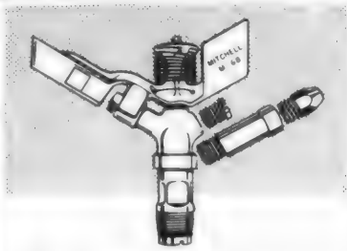
"We don't figure on growing much larger here at Ogeechee. Ours is a pure-bred Polled Hereford operation with bulls and open heifers as our cash crop. Producing breeding stock is a business that must be kept in one mind. It is not just a matter of numbers and records. The man who runs the operation must know each cow and her production individually. He must keep those records in his mind and work with them constantly. Every time I look at a cow and calf I start thinking about how she should be bred next.

"But we couldn't run a much smaller operation than this, either. The boy with registered cattle with a one-bull herd is on the shakiest limb he can crawl out on. Numbers are just plain good insurance for a breeder."

Butts is convinced that the key to future success in the cattle business is the maintenance of a feed reserve. He points this up with this incident. "It wasn't long ago I went to a sale to try to get two cows we wanted. Another man went to $1300 each for them, which was a little more than we were prepared to pay. A few months later he ran out of feed and had to offer part of his herd for sale. We picked those two cows up for $800.

"A registered herd is in real distress when it is forced to contract and expand in relation to its feed supplies, so we try to keep a three-year supply of silage on hand. We put up 800 to 1000 tons a year in horizontal silos and never have to worry about drouth or short crops."

Irrigation has not been tried yet at



This versatile new Mitchell M-68 will do all that formerly required two separate sprinkler heads. You get more for your money; more from your land, too. The M-68 meets all crop needs from seedling to maturity.

SPECIAL FEATURES

- **1 nozzle for windy days**
- **2 nozzles for more water**
- **Use barrel extension to cover larger areas**
- **Rotating cap makes spring tension adjustment easy**
- **Neoprene bumper on the driving nozzle absorbs shock; assures long, trouble-free service.**
- **4 to 22½ g.p.m. capacity**

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Mitchell Mfg. Co.
FORT SMITH, ARK.
Established in 1910

Dry as you harvest—
right out in the field!

Half the Cost of Other Big Capacity Dryers

The CROPGARD saves labor and handling, because it can be pulled into the field and operated by tractor P. T. O. Here's how simple it is to operate: (1) Fill (or partially fill) dryer with grain (2) Hook on tractor PTO shaft (3) Light oil burners (4) Dry grain (5) Cool with fan (6) Unload grain with hydraulic hoist. Drying speed 100 bu. per hour. A.S.C. (PMA) financed. *Write for free bulletin.*

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... for surer pregnancies ... for better young follow the lead of successful breeders in all parts of the country—feed Quintrex-ADE Oil before mating. This blend of carrot oil, wheat germ oil and "D" activated animal sterol successfully combats nutritional sterility.

4 oz. only $1.80 postpaid!

Put Quintrex-ADE Oil in feed of horses, cattle, swine, dogs, poultry and fur-bearers. Dosage varies according to size of animal—follow simple directions on label. Orders shipped same day received. Send check or money order for $1.80. Money back if not satisfied. Breeders who have tried it reorder year after year.

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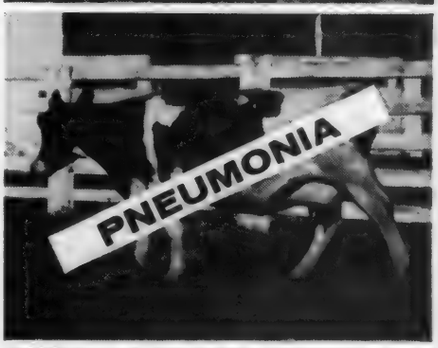

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. . . save time, labor, money and storage space

Capacity to match either one or two-row corn pickers makes the new Haban Field Husker-Sheller a sensation in cost-saving corn harvesting and handling. Hooking between picker and wagon, it husks, shells, cleans and delivers the shelled corn into wagon box. Send for catalog.

NEW Haban FIELD HUSKER-SHELLER

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NEW THIS YEAR

False End Unloader with "xtra-flex" long-lasting cable. Exclusive Big Diameter spool eliminates cable damage.

This is only one of the famous Flinchbaugh Unloaders. Canvas type and chain pull false ends also available.

WRITE FOR FREE INFORMATION on America's most complete line of Wagon Unloading Equipment.

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Please send information and prices on your complete line of Unloaders.

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Ogeechee Farms, though Butts is eyeing it very favorably. He says, "I am convinced that irrigating our good Bermuda grass and applying nitrogen in the water would increase the carrying capacity of our best pastures ten times. We could increase our stocking rate from two acres per cow to five cows to the acre and we could have good pastures from June through September. Don't be surprised if Ogeechee breaks out in sprinklers one of these days."

Butts spends a lot of time in the saddle but the horsepower used for the farming operations is the kind that is generated in tractor engines. Four tractors power the equipment for the maintenance and improvement of pastures and putting up silage. No field crops are grown, no hay is put up. "We can buy hay cheaper than we can make it ourselves, so we don't fool with it," says Butts. "Just a little example of the specialization that goes on in today's farming."

Fertilizer, Butts classifies with death and taxes. "You can't get away from it. We won't be increasing our rates in the immediate future, unless we go to irrigation, but will continue with our present treatments of 1500 pounds of rock phosphate per acre on new stands of grass plus a top dressing of 40 to 50 pounds of super phosphate. We use pelleted ammonium nitrate at the rate of 40 to 50 pounds per acre in February and early March, determining the need by the number of cattle and the condition of the stand."

Ogeechee Farms have been performance testing their bulls for the past two years. In Butts' opinion this is the most promising tool the rancher has at hand. "We are getting twice as much money for them as we were two years ago," he says.

He contends that the big revolution in the cattle business will be the eventual switch in feeding from corn to grass and roughages.

Despite his optimism, Butts has no encouragement to offer the newcomer. "The young fellow who wants to get into the business has more fortitude than I," he says. "The prospects aren't bad for the fellow who is established, but it takes too much money to get started."

The Cotton South

The revolution that has taken place in the cotton fields of the south is no better pointed up than in South Carolina. From a high point of just a little less than 3 million acres in cotton 30 years ago, the state is now down to an allotment of around 700,000 acres, but the yield is twice what it was before the boll weevil invasion of 1920. The 5-year average per acre at that time was 188 pounds. It is now 360 pounds and lots of good farmers grow a bale (500 pounds) and even a little more per acre.

As J. M. Eleazer, Information Specialist at Clemson College, explains it, "Farmers have just thrown the whole book of know-how at cotton production. They use good

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Inflate tires . . . operate grease guns, blow guns . . . spray paints. *Trouble-free* labor saver. Write

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Crib Plans FREE!

Send for FREE crib blueprints with list of all materials. Also Elevator catalog showing 10 styles.

MEYER FARM ELEVATORS CUP AND PORTABLE

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That's right! A yield of 4 tons of dehydrated alfalfa per acre, selling at an average price of $50 per ton, brings $200. Two hundred acres brings $40,000 gross income.

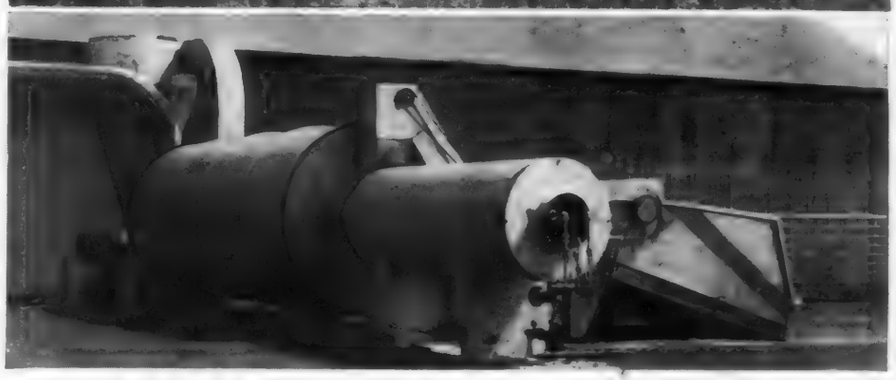
Figure the potential on your forage acreage. First, add 10% to your present hay yield, because leaf shattering and weather loss are prevented and an extra cutting is usually possible. Then multiply by the price. The average weighted wholesale price of top-quality dehydrated alfalfa meal at Kansas City over the 7-year period, 1949-55, was $56.60 per ton.

With an Ardrier Farm and Ranch dehydrator, you grow more alfalfa on the same acreage, save it all . . . regardless of weather . . . at average drying fuel cost of only $3 to $6 per ton, depending on fuel available in your area. If you are a large beef or dairy operator, you can make alfalfa pellets, ready for self-feeding, at half the retail price. And livestock *GO* for them!

Ardrier flash drying preserves alfalfa, or other forage crops, at their peak of nutritive value. You get more protein, vitamin A, and other essential health and growth elements.

NOW is your opportunity to escape acreage restrictions and grow a soil-conserving, soil-building, low-cost legume feed crop — worth $200 per acre. ARD-63

ALFALFA— worth $200 per acre!



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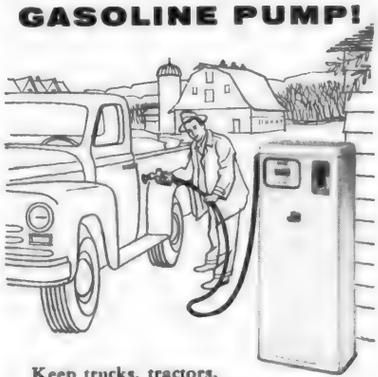
NEW ELECTRIC GASOLINE PUMP!



Keep trucks, tractors, cars, machinery refueled on schedule. This new Tokheim Pump, spotted in your farmyard, assures greater storage, fewer deliveries, real savings! Features easy-to-reach nozzle, easy-to-read dial, plenty of hose. *Safely* delivers 10 gal. per minute. UL approved. Ask your Tokheim representative or your oil company about this modern work-saver!

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varieties, heavy fertilization, thick spacing; they spray and dust and have kept the cream of the land in the crop. But they are going to have to do even better. If we can't *average* a bale of cotton to the acre throughout the state we're going to have to get out of the business.

"But we can do it and here's how. We have a good variety now, Coker 100 WR (wilt resistant), that has taken hold all over the state. Probably there will be even better ones coming along.

"Fertilization will have to approach the 800 to 1000-pound level that our top farmers are using. This is usually a 4-10-6; and beside this these men also use 50 pounds of actual nitrogen in the form of sulfate of ammonia or nitrate of soda. Anydrous ammonia is beginning to become popular down here. It will probably help us to get more nitrogen for our money.

"The plowboy and the mule are going. In their place we have 2-row and 4-row tractor equipment. The land that stays in cotton will be the kind that can be mechanized. As equipment increases, the size of the cotton farm will increase likewise. A man almost has to have two farms in order to get a large enough allotment for his equipment. He needs about 150 acres of cotton.

"It used to take one family to handle 15 acres of cotton. Now one man with four-row equipment can handle 150 to 200 acres up to harvest time. At harvest time he either has to hire field hands, at

NEW Pax feeders
with CAST IRON trough
PRODUCE MORE PORK
with less feed
and pay for themselves in one season

1. New exclusive Pax Quick-Change inside hopper feed flow regulator. (Pat. appl. for.)
2. Positive action full floating agitators with exclusive Pax cone-over-cone feature on the 30 bu., 45 bu., and Pig Palace Creep Feeders. The top cone over the agitators carries feed load. Agitators are easily activated by small pigs.
3. Feed saver flange on feed trough and handy feed flow adjustment will save enough feed to soon pay the cost of the feeder.
15, 30, 45 bu. cap'y available
rugged sectional cast iron feed trough with feed saver flange
Prices of the standard series with cast iron bottom start at $51.95 f.o.b. nearest distributing point.

Write for complete details on this New Hog Feeder and complete line of Hog and Turkey feeding and watering equipment

PAX STEEL PRODUCTS INC.
Distributed from Coldwater, Ohio; East Moline, Illinois; Sioux Falls, S. D.; Kansas City, Missouri.
Ask for Bulletin F400

Your WISEST investment in a rotary tiller is an

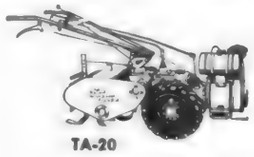
Ariens

Your WIDEST choice of models to meet every tilling need!

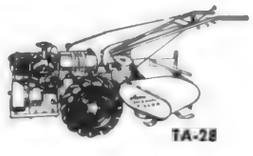
Ariens, Jr., Rotary Tiller prepares seedbed, cultivates all season long. 2 h.p., 4-cycle engine. All steel, one-piece frame . . . tiller idling clutch, "paring knife" tines. Tills 12" wide, up to 6" deep.

Ariens Yardster Rotary Tiller has interchangeable attachments for year 'round use: rotary mower, sno-thro, sprayer. 2 h.p. engine. Two-speed wheel drive. Tills 12" wide up to 6" deep.

ARIENS
trans-a-matic
ROTARY TILLERS



TA-20



TA-28

Need a heavy-duty walking tiller? Only the Ariens Trans-A-Matic Tillers have a ball and cam differential for positive traction under all conditions; fingertip controls for easy operation; rugged construction features. Choice of two models:

Model TA20 with 8.1 h.p. Wis. engine—20" tillage.

Model TA28 with 14.6 h.p. Wis. engine—28" tillage.

For full information, write:

Ariens COMPANY • 117 Calumet St. Brillion, Wisconsin

a rate of $2.50 to $3 a hundred pounds, or he needs a mechanical picker.

"While a mechanical picker is an expensive item—around $7500—it can do a heap of work in a day. Most growers prefer to own their own picker rather than depend on custom work. It gives them more independence."

Another labor saver in the cotton fields, Eleazer points out, is pre-emergence treatment with chlorol-I-P-C. This chemical is sprayed over the rows and kills the weed seeds which are on or close to the surface. It makes the row devoid of weeds and grass so no hoeing is needed.

Cotton has always been looked upon as a crop that doesn't suffer too much from dry weather, so it was felt that irrigation wouldn't pay. "But," says Eleazer, "here at the college we have been irrigating cotton for the past eight years, dry years and wet, and we have averaged a half bale per acre increase on irrigated land over non-irrigated land. With cotton worth around $200 a bale, that is a $100 per acre increase. The cost would probably be around $25 per acre. There is no doubt about it, irrigation is coming in cotton."

As cotton acreage declines, livestock numbers will continue to increase in the south, especially beef cattle.

"If we just had cattle in our blood down here like we have cotton, you'd really see some progress," says Eleazer, "because we have a tremendous advantage over the rest of the country in our excellent pasture land. Actually, we don't know the limit to our stocking rate when it comes to using a grass like Coastal Bermuda teamed up with nitrogen.

"A farmer came in the other day and asked how heavily he could stock his pastures. I had to tell him I didn't know. The only question was how heavily would he want to stock them. Once he decided that, it was just a matter of fertilizing accordingly."

Coming Attractions

Where do we go from here? While crystal ball gazing can lay the road for a quick trip to the poorhouse, there are enough indications abroad to furnish a basis for a little solid speculation on the future.

Atomic powered tractors? Well, not yet; though none will deny that the day may come when nuclear energy will take over, it is still too early to get excited about this prospect. But electric drive tractors—that's a power plant of another color. Already the tractor mounted generator has jumped from the drawing board to the hay fields and electric motors are challenging PTO and gasoline engines in powering auxiliary equipment.

The past few years have seen the advent of "live power." The trend will continue to even more improvement in transmissions, providing more flexibility of power and smoother and faster field operation.

The principles used in the hay conditioner and the improvement of barn driers may soon make the 8-hour day a reality in the hay field.

And with the assistance of the plant breeders, mechanization may even move into fields which until now have been the last stand of hand methods. It was precision planting that finally eliminated hand chopping from the cotton fields.

In the Carolinas, the task of tobacco harvesting is under vigorous attack by the engineers and plant breeders. Commercially manufactured machines which carry crews of primers and loopers are already on the market. An important step will be the breeding of a plant which will provide uniformity of growth, of ripening, of the angle of projection of the leaf from the stalk, of node spacing between consecutive leaves, and complete sucker control. With this tailor-made plant before them the engineers will have their problem reduced to one of providing a machine which can go down the row picking the ripe leaves at uniform levels and spacings. When that time comes the ridiculous 105-man hours per acre now required to house tobacco will be brought within reasonable limits.

Dr. K. S. Quisenberry, Director of Crops Research, United States Department of Agriculture, noted recently that 70 per

For lowest cost Farm Buildings

USE 48"-WIDE KAISER ALUMINUM ROOFING

AND POLE TYPE CONSTRUCTION

POLE TYPE construction using 48-inch wide Kaiser Aluminum Roofing is the ideal way to reduce farm building costs—*no foundation is needed.*

Authorities say it takes less time and labor to build with poles than with any other method. And 48-inch wide Kaiser Aluminum Roofing sheets make the job even easier.

These big sheets can cut your roofing time drastically. They go up faster because each sheet covers far more area. One lightweight sheet takes the place of two. There are fewer side laps, so you save metal and get a tighter roof.

Like all Kaiser Aluminum Roofing the new 48-inch sheets reflect hot sun rays to keep interiors as much as 15° cooler. They need no paint because aluminum won't rust. Strong and durable, they give excellent protection year after year.

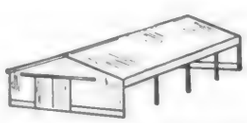
Ask your building materials dealer to explain the many advantages of new, better-looking, more efficient 48"-wide embossed Kaiser Aluminum roofing—available in 2½", 1¼", corrugations and 8-V crimp. He'll be glad to help you estimate your requirements.

These low-cost building plans will help you!

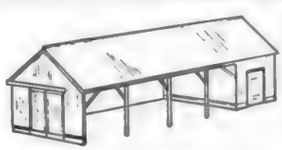
Eleven new building plans specifically designed by Kaiser Aluminum Agricultural Research Service help you benefit from all the advantages of Kaiser Aluminum Roofing—in both 48"-wide and regular 26"-wide sheets. Most of these plans feature low-cost pole type construction.

Each plan is a complete set of easy-to-follow working drawings—includes section details, elevations, bill of materials!

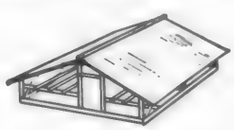
Check the plans you want on the coupon and mail it today! Also be sure to check for your valuable free folders, entitled "Plans Catalog and Price List" and "How to Estimate and Apply."



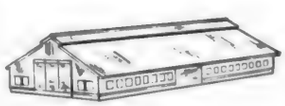
60' x 68' GENERAL PURPOSE BARN



28' x 80' MACHINE SHED

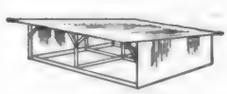


10' x 10' POULTRY RANGE SHELTER

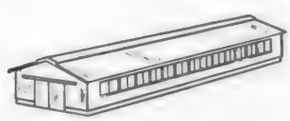


32' x 100' BROILER-LAYER HOUSE

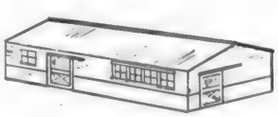
16' x 24' LIVESTOCK RANGE SHELTER



10' x 16' PORTABLE HOG HOUSE

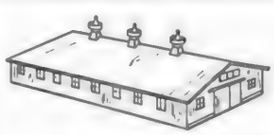


40' x 120' PRODUCTION BROILER HOUSE

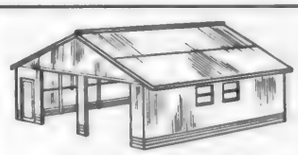


18' x 40' MILKING BARN

26' x 45' MULTI-PURPOSE STORAGE SHED



40' x 80' STABLE BARN



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cent of all crop acreage planted in 1954 was in varieties that were not even in existence commercially in 1935. This trend in the development of new varieties is certain to continue and at an increased tempo made possible by new techniques. For example, after Race 15B stem rust struck the durum wheat area in 1950, four new resistant varieties were developed and released in only six years. Such a project would formerly have required at least twice the time.

Atomic radiation is now a fairly common tool in inducing changes in germ plasma, another step to speed up the efforts to provide a more perfect adaptation of plant to environment.

The plant breeders also think they may find a way to breed into the grasses the ability to supply their own nitrogen the same way the legumes do.

In livestock feed the use of hormones and antibiotics seems to be just in its infancy. We know these additives work, but we're still not quite sure how they work. When this question is answered more fully the results coupled with better breeding programs will be just a bit fantastic. Some men close to the work are talking about cattle gains of 4 pounds per day in feedlots so provided with automatic equipment that the farmer will be able to do his feeding once a week with occasional visits to keep the eye in practice.

Individual inoculations may be on the way out in animal disease control and prevention. With poultry the day seems to be just about here when large numbers of chicks will be immunized all at one time by spraying live virus in a restricted area where the chicks are enclosed.

None of these ideas represents the end of the line in research and progress. Each is only the beginning. American agriculture in 1966 may well be as startlingly different from the farming of today as today's techniques are from those of 1910. Beyond that date research seems to be outdistancing even human imagination.

Get the Most for Your Money with famous MEYER portables. 3 sizes —10″, 18″, and 20″. Galvanized steel sections... heavy duty double steel chain. Roller bearings throughout. 8′ or 10′ tilting conveyor (hopper or bale chute optional). Elevate corn, small grain and baled hay.

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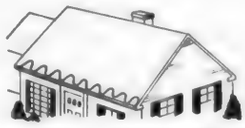
HEATING CABLE SETS solve many farm problems

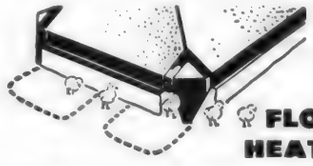
PIPE HEATING

The simple installation of a G-E heating cable set around exposed pipes, valves, and pumps keeps them from freezing even in the coldest weather. Typical uses are to protect piping that supplies drinking water to animals, to guard sprinkler systems in cold locations.



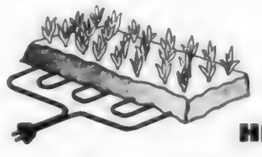
DE-ICING

Along roof edges and in gutters, G-E heating cable sets prevent build-up of ice dams that can cause destructive leaks when snow is melting away. Also useful for de-icing gutters and downspouts and to prevent accumulation of snow or sleet on garage aprons, walks, steps.



FLOOR HEATING

G-E heating cable sets for poultry brooders result in faster, healthier growth with much lower mortality. There is no crowding for heat, all chicks are in full view, feeders and waterers are easily accessible. Also ideal for floor heating in kennels and other buildings.



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Now it is easy and economical to have a successful hotbed or cold frame, without need for troublesome manure bedding or expensive steam or hot water systems. A General Electric heating cable set, buried in the soil, keeps the soil at the ideal temperature for germination and the early growth stages.

G-E heating cable sets come ready to install in lengths of 26, 30, 40, 60 and 100 feet with ends assembled into a weatherproof plug . . for 115 volts. Also 120-foot sets for 220 volts.

Can be used with thermostats to provide close, automatic regulation of temperature, or they can be operated by direct switching. Detailed application and installation instructions are packed with each set. For complete information, see your hardware or farm equipment dealer, or write to Wiring Device Department, General Electric Co., Providence 7, R. I.

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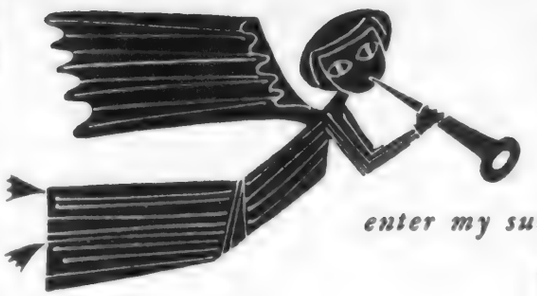

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WE RAISE PONIES

(*Continued from page* 55)

the mainland by 200 miles of rough sea. For centuries the Shetland has been noted for his even temperament, sound legs and feet, strong and symmetrical body, good eyes, and wonderful endurance. On the Islands the Shetland earns his keep by carrying 150-pound loads of peat from the cold, wind-swept hills, the while thriving on heather and seaweed. He is never submitted to the indignity of harness. American breeders have developed a stock less of the draft type than the Island pony, yet equally strong and agile, but the breed still carries a strain of stubborness characteristic of its ancestry.

The Shetland's height is measured in inches, whereas the unit of measurement of other equine breeds is the hand (four inches). The smaller the pony, generally, the more expensive, with heights of 36 to 42 inches being most popular. Many Shetlands, however, grow as much as 50 inches tall. They come in all colors of the spectrum, solid colors and spots. The spotted animals often have a "glass" eye. The gestation period is eleven months and the foals weigh 20 to 40 pounds at birth. The mature weight is 300 to 400 pounds. The colts are born with a pronounced bump of curiosity and when you visit a pony farm, you'll soon find yourself surrounded by friendly and sniffing noses.

In the Shetland Islands droves of ponies live in the hills, scrounging for themselves in a half-wild state. They may come to the farmyard in bitter weather when hunger presses, but usually they require no shelter and little feed except what nature provides. If fed a high protein ration they may get overfat and on poor forage they will become paunchy. Their longevity is proverbial—often reaching 25 to 30 years.

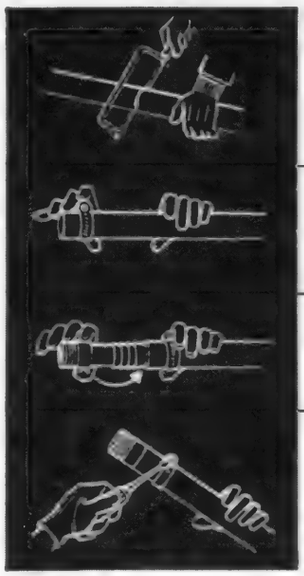
A mature Shetland's rear quarters are a bulging mass of muscle, probably second in proportion only to the muscular development of the Quarter Horse. The Shetland's conformation, by conventional riding horse standards, leaves much to be desired. Of 21 recognized equine breeds in the U. S., only the Quarter Horse and two breeds of pleasure horses exceed the popularity of the Shetland, as indicated by the registered population. The American Shetland Pony Club, Lafayette, Indiana, reports there are about a quarter of a million Shetlands in America, with 30,000 registered.

The Welsh Pony

There are two rather distinct breeds of the Welsh pony—the Mountain Pony, and the Cob. The Mountain Pony is the smaller, with an average height of 48 inches. The Cob, according to legend, has some Arabian and Hackney blood, and Welsh Cob blood has appeared in many English hunters and steeplechasers. The Mountain Pony is handsome and good natured, but he is not as suitable for small children as

4 simple steps

get the water where it's needed with USS NATIONAL* PLASTIC PIPE



1. Cut the pipe to desired length with a hacksaw or carpenter's saw.

2. Slip the stainless steel clamp over the end of the pipe.

3. Insert fitting into pipe up to the shoulder. No sealing compound is necessary.

4. Position the stainless steel clamp directly over the serrations and tighten with a screw driver. That's all there is to it!

You can carry lightweight NATIONAL Polyethylene Plastic Pipe anywhere, unroll it like hose, connect it to your feeder pipe, and have irrigation *where* you want it, *when you want it.* It's quick.

Flexible NATIONAL Polyethylene Plastic Pipe can be run around corners or over obstructions. Ells, tees, couplings, reducers, and valves are available to meet any layout requirement. Threaded adapters are also available for joining plastic to steel pipe. A screw driver and a hacksaw are all you need to do the job. It's simple.

USS NATIONAL Polyethylene Plastic Pipe will not corrode. It can handle a wide variety of acids, alkalies, salts and other chemicals. It retains its flexibility and toughness over its entire working range from minus 90°F to plus 120°F. Excellent for underground or aboveground installations. It won't crack or break if water freezes in the line. And its smooth interior surfaces offer very little flow resistance to liquids passing through it. It's efficient.

Only 100% virgin "on grade" polyethylene material is used in the manufacture of NATIONAL Polyethylene Plastic Pipe. It is available in sizes from ½ inch to six inches in diameter, in a variety of wall thicknesses and in lengths up to 400 feet long. For full information, write to National Tube Division, United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pennsylvania. Ask for Bulletin No. 29.

This seal of the National Sanitation Foundation is carried on all National Tube Polyethylene pipe, and means Tested . . . Approved . . . Sanitary!

*Trade-Mark

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UNITED STATES STEEL EXPORT COMPANY, NEW YORK

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UNITED STATES STEEL

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C. C. Richards, Farm Manager
H. D. Ullery Farms, Inc.
Rt. No. 1, South Bend, Indiana

WITH the aid of our research laboratory and experienced field men, Hoover provides a farm counseling service that is highly endorsed by progressive farmers the country over. This service includes soil analysis and subsequent recommendations for building up the soil and increasing production. Fertilization, rotation, tillage, quality-control, and crop analysis are covered in these recommendations and services. You can get *complete* service, as described, or any part of it to solve a particular problem. It will pay you to investigate today. Write for free descriptive folder. There's no obligation.

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the Shetland, being more spirited and active. However, he is an ideal animal for the child who has outgrown the smaller and more docile Shetland.

Like the Shetland, the Welsh comes in a variety of solid colors and spots. The Welsh is finely conformed; he appears to be a miniature horse and presents none of the blockiness of the Shetland. Tradition says he carries a dose of Thoroughbred blood, credited to a stallion which was turned loose among a herd of Welsh mares about 125 years ago and created a lasting impression. The breed is extremely hardy, and like the Shetlands, they have a half-wild ancestry. They are good keepers.

The Hackney

The Hackney was once in great demand in England, land of his origin. His high-stepping, extravagant action makes him a brilliant performer in harness. Although famous as a saddle mount during the Eighteenth Century, the high action makes him a rather difficult riding horse; his high spirits and action requires an experienced handler.

The breed flourished during the 18th Century, but declined during the Nineteenth with the advent of rail travel, and was revived again as a sporting animal with the creation of the Hackney Horse Society in England. Top specimens imported to the United States have been used for show and breeding purposes.

Of these three breeds, Shetland, Welsh, and Hackney, the Shetlands are preferred for children, with a Shetland-Welsh cross a second choice.

Ponies As a Business

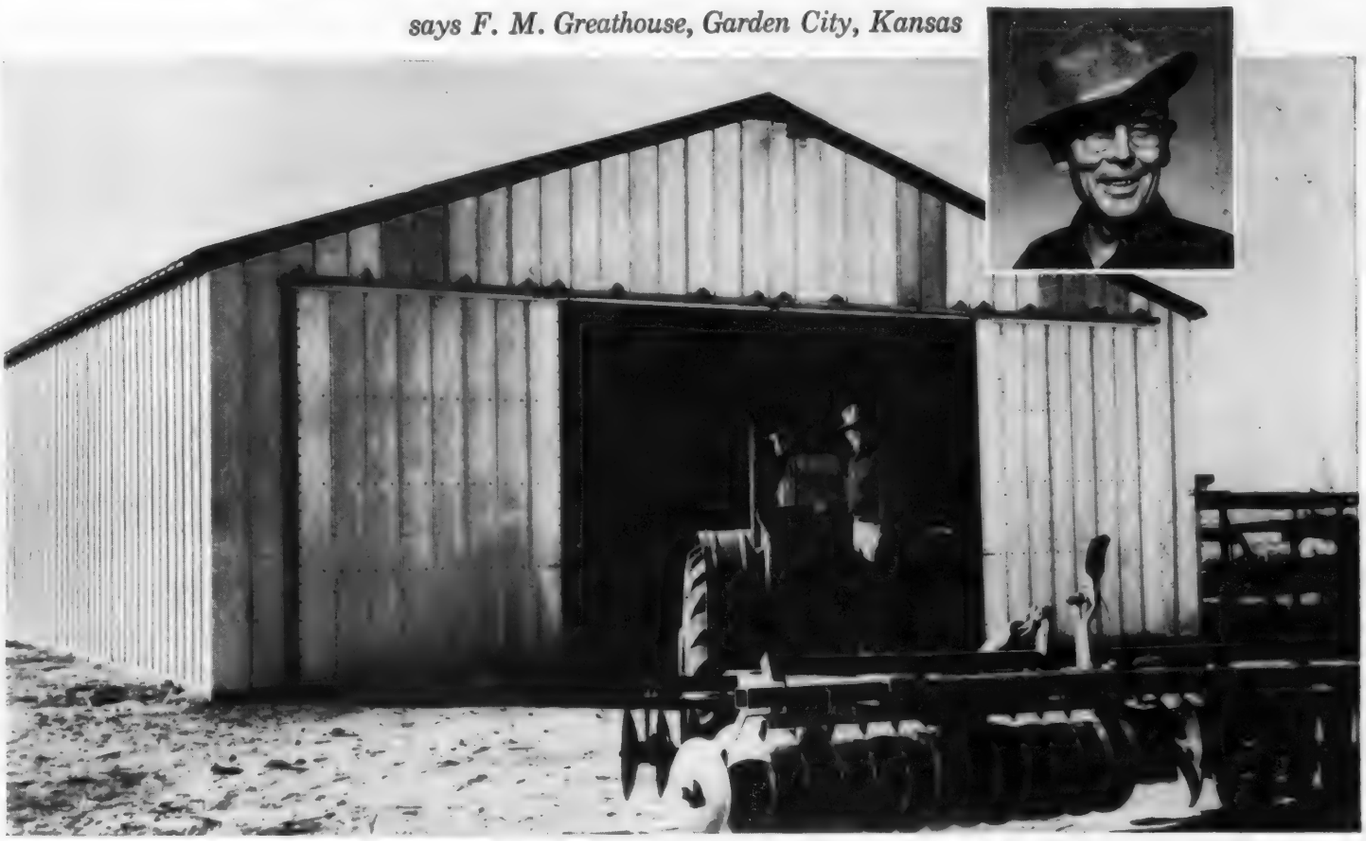
One of the most successful breeders of Shetlands in the Midwest is Elbert L. (Bun) Barrett, whose farm is five miles west of Springfield, Missouri. Barrett raises ponies for a living, but insists that he would keep right on raising ponies if he didn't make a cent. "Every time children come to see my ponies, it takes all the rough off an old sore spot and puts it on a new one. If ponies didn't make me a dime, I'd still raise them just to make kids happy."

Fortunately, Barrett's ponies make him a good living. He started out ten years ago with three ponies for his grandchildren to ride and when he found that he could sell their offspring for good money and that they could be raised for a fraction of the cost of cattle, he bought 100 mares, paying from $75 to $100 each. Today his herd numbers 105 head and is valued at $75,000. Last year he sold $10,000 worth of ponies.

About half of Barrett's Shetlands are registered and to realize the fullest amount of gain on his investment and for the fun of it, he makes a regular show circuit each year. His 12-year-old granddaughter, Jane Thurston, shows for him, both in the saddle and harness classes. He thinks showing, by virtue of its advertising value, increases his sales and profits. His only advertise-

"I make my money farming, not fixing things up"

says F. M. Greathouse, Garden City, Kansas



This tandem Disc Harrow can be pulled right through these big doors without any dismantling—a great time and labor saver.

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Mr. Greathouse chose his 36′ x 60′ Steel Building for two practical reasons—economy and convenience. It's economical in that the initial cost is moderate, and, most important, it requires virtually no upkeep. Secondly, he has so much storage space for grain that he doesn't have grain elevator fees to pay at harvest time.

The convenience and versatility of Mr. Greathouse's Steel Building have shown up in many ways. In addition to grain storage, he uses it for machinery storage and as a repair shop. Furthermore, since he buys calves to raise each year, he has found he can modify his Steel Building easily and inexpensively to house the calves at one end.

Mr. Greathouse expects his Steel Building to last through his lifetime. "It is ideal for my purposes," he says, "and I'd recommend a Steel Building to any farmer, anywhere."

Factory-Built Steel Buildings, fabricated from USS Galvanized Steel Sheets with USS Structural Steel framework, can do a great deal toward making *your* farm a more practical, better paying investment. For the complete rundown on all the advantages of Factory-Built Steel Buildings, return the attached coupon. No obligation, of course.

Using the Steel Building as a repair area, Mr. Greathouse does some welding on a ditching machine.

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The Farm

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This was the lesson one farmer learned by hard experience. His "do-it-yourself" system finally cost him 10% more, was too expensive to operate and inadequate for his requirements.

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ment, outside of showing, is a large sign, "Barrett's Pony Farm," painted on the end of his barn which faces U. S. Highway 66. His pastures, stretching on both sides of the highway and decorated by dozens of mares and their toy colts, is his show window and best advertisement.

Besides making a good living from Shetlands, Barrett has the time of his life meeting people, observing happy children with their newly-purchased pets, and attending shows and sales all over the Midwest. Many of his customers are repeats. He tries to match timid children with gentle ponies and recommends a spirited animal for a youngster who is a ball of fire. "Both the pony and the child are happier if they have the same temperament," he says.

Barrett keeps his mares and stallions on pasture until midwinter, feeding them no grain until after the first of the year. He then limits the feeding to a quarter pound of oats per one hundred pounds of pony weight. A four hundred pound pony gets about a pound of oats and four pounds of hay per day.

The Shetlands seem to enjoy the winters. Their ancestral home, the Shetland Islands, is cold, bleak, and stormy, and they thrive in this type of weather. Barrett never shelters the stock except to provide a shed for their protection during cold rains. All through the winter they nibble on the dry grass, pawing away the snow. A half acre of improved pasture is allowed for each pony a year old or older. During the growing season, Barrett's pastures of orchard grass, fescue, and lespedeza often grow shoulder high to the Shetlands. He manages the grazing to have a good crop of carry-over grass for winter.

A stallion can pasture-breed about 25 mares, or about 75 to 100 with controlled breeding, per season. Barrett's stallions winter with the mares, since they are docile at that time. About the time the maple tree buds begin to swell, the mares and stallions are separated to keep peace in the pasture.

Barrett likes to breed his mares around 14 to 15 months of age. He never breeds a mare unless she is in good living order and on good grass, gaining in weight and beginning to shed. In this condition she is more likely to settle with the first service, and her metabolism is ready to take care of the added strain of gestation.

The mares are bred to foal in April, May, and June. They foal in the open on pasture. He warns about letting colts come too early in more northerly climates, since the colts cannot stand severe cold for the first few days of life. The mares get no extra feed before delivery; just the one pound of oats daily that they have been fed since the first of the year.

When the colts are born, Barrett watches their mothers closely to see that they produce plenty of milk. He also watches the bowel movement of the foal for indication of digestive upset. The colts are weaned at five or six months and are taken abruptly off the mare's milk. Since they are now used to nibbling at the oat trough with their mothers, they are ready to begin eating by themselves. Barrett continues to feed the colts hay and oats throughout the first winter, and they are not put on grass alone until they are a year old. He says it's all right, though, for colts to eat good grass their first summer, but warns about making them subsist on grass alone. "They just won't develop properly unless they have hay and grain," he says.

Barrett has a somewhat flexible price schedule. "What you pay," he says, "depends on what you want. I sell my filly colts mostly to other breeders. They bring $350 to $500 each. I get $150 to $300 for a gelding. The difference in price is the difference in breeding, age, whether or not the pony is registered, and if the pony is broken to ride."

Barrett's prices are fairly representative for registered animals. Like all breeders, Barrett will sell an unregistered pony for less, and the less desirable of his herd go for what the market will offer. Pony farms are springing up everywhere to meet the increasing demand for children's pets and prices for grade animals vary greatly. Some farmers keep two or three or a half dozen mares and a stallion as a sideline and sell for reasonable prices to those not particularly interested in pedigree. Shopping

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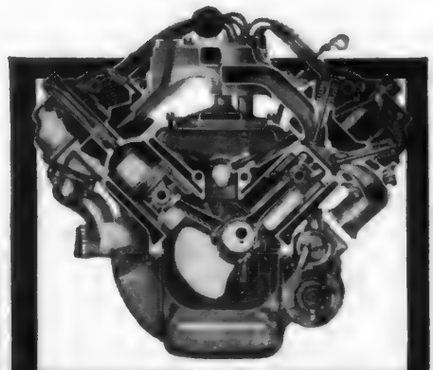
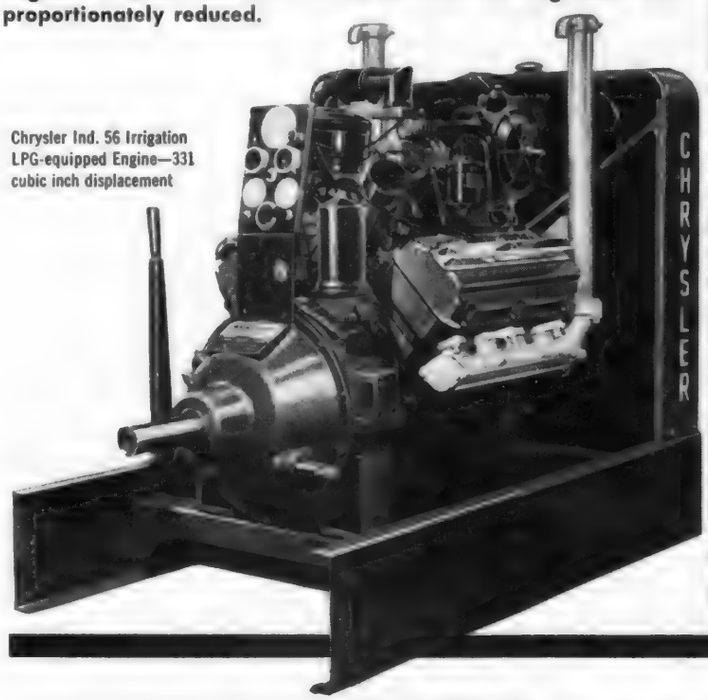
Chrysler Irrigation Engines are over-square, short-stroke V-8 engines built around the famed Chrysler Hemispherical-Design Combustion Chamber (right). Over-square pistons (see illustration) travel only half as far and fast as those in competitive engines. Friction losses are cut in half and bearing loads are proportionately reduced.





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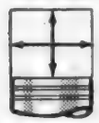

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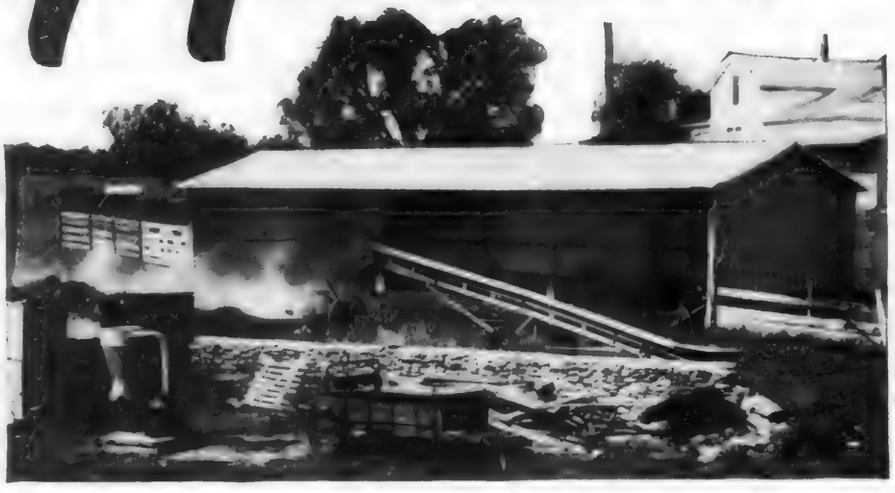

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around, if price it important, will pay. The price of a saddle and bridle is often quoted with the pony. Animals that children have outgrown are always on the local markets.

The Quarter Horse As a Pony

The Quarter Horse, known on the western ranches as the "cow pony," is not generally regarded as a true pony. However, it is not much larger than a large pony, makes an ideal child's mount, and has the advantage, at the present time, of costing much less.

The Quarter Horse is the cattleman's arms, legs, and part of his brain. He makes tough circles on the range to round up cattle; he is a rope horse and a cutting horse; rich men make him a polo pony; poor men make him a pleasure pony. The Quarter Horse stands about 14.2 hands high (58 inches) and the ideal weight is about 1050 pounds. He is muscular to the extreme. At first glance, he may seem to be traveling downhill, for he is low withered and his neck, showing little or no arch, apparently protrudes directly from its point of attachment at the withers. Shortness in everything is characteristic of the Quarter Horse. He has short legs, a short back, and a short head with upstanding "fox" ears. He is a compact bundle of muscle with an abundance of horse sense and a good disposition. He enjoys tremendous popularity in the eastern states, probably because he is a very economical keeper as well as a comfortable horse to ride. He comes in a variety of colors and color combinations.

There are a number of reasons why the Quarter Horse merits consideration over the smaller ponies. While he is a little large for very small children, he will not be outgrown. A small Welsh or Shetland is soon outgrown, but a Quarter Horse can serve the youngster until he leaves home for college.

Price is also on the side of the Quarter Horse. One can purchase a good Quarter Horse for much less than what a registered pony would cost. Almost every horse auction in the country periodically gets shipments from western ranches—all kinds. from bred mares to geldings to worn-out cow horses. Bred mares (two horses for the price of one) could be bought for as low as $75 on last summer auctions.

More About Prices

With ponies a red-hot fad as they are now. prices zoom, spiral, and nose dive, and like women's hats, change with the seasons or even overnight. A spotted animal brings better prices than a solid-color animal unless the solid color happens to be a sorrel or palamino. The silver dapple. a black with dappled white spots and a white mane and tail, is a close second to the sorrel in popularity. Size is even more precious than coloring—an inch or two either way from the 40-inch mark may

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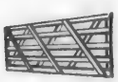

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mean several hundred dollars difference in breeding stock prices.

Here are typical prices for grade and registered stock (small ponies, Shetland and Welsh) in the Midwest as reported by Autove Cox, who has a small operation at Tobasco, Ohio, but has shopped around at auctions and sales throughout the entire area: A good grade stallion can be bought up and down from $175, depending on size; a yearling registered stallion runs from $250 to $500. For the small exceptional animal the price may soar to several thousand dollars. The prices for mares, both grade and registered, average much higher than for stallions. At an auction in Indianapolis, Ind., in May, 1956, the record price for a mare was $2,200 and the average was $1,000. Good grade mares in the 38-39-inch size bring from $800 to $1,500. When the height goes above 40 inches, the price sinks considerably.

Geldings, both grade and registered, the bread and butter of the commercial breeder, bring much lower prices. A good registered gelding can be bought for $100; grades sell for as low as $75 in solid colors, $100 to $125 in spots. For the trade, crossbreds are as good as purebred, size and coloring being more important.

In all cases coloring, and especially size, seems to have more influence on prices than conformation or breeding. As is always the case when a fad is riding high, there's a good deal of hocus pocus in the game; breeders are taking in each other's washings, and there are always some trying to catch a sucker. The same thing happened with rabbits, hamsters, and chinchillas in the get-rich-quick stage of promotion.

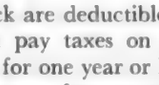
The Show Ring

Anyone who fools around with ponies or horses for any length of time is bound to get the urge to hit the show circuit. If his horses are the fast kind, he may be tempted to the race track; if he has ponies the show ring will beckon to him like a siren.

To try to go into the show game in detail would fill a good-size book. To make it brief, pony classes are divided into saddle classes and harness classes. In areas where there are a lot of breeders, "in hand" classes are often scheduled. These are events in which breeding stock, stallions, mares, foals, and yearlings are shown on the lead line. Saddle classes are ordinarily divided into Western or English events, meaning that the ponies are shown with stock saddles and other Western equipment or under English tack. And, of course, the classes are usually broken down according to the size of the ponies.

But the show ring is a different world from the child on his pony, riding down a country road—two friends out to enjoy each other's company and to see what lies on the other side of the hill. The two worlds seldom meet. The show pony is the plaything of grownups—the child's pony is for fun.

THE AUTHOR: Frank Farmer lives on a 200-acre Ozark farm near Walnut Grove, Mo. It's the old family place with registered Jerseys, sheep and Quarter Horses. Writing is Mr. Farmer's vocation, however, and farming the sideline. He says he wrote his first story at 10 years of age, but it, too, was a pastime until two years ago when he turned professional. He uses the farm as a workshop and writes mainly on agricultural subjects.



TAX TIPS FOR FARMERS

(*Continued from page* 69)

penses of raising livestock are deductible as you go along. When such stock is sold, you pay taxes on only half the profits, if you have held the stock for one year or longer, under the capital-gains law. For this reason, farmers whose primary enterprise is raising and breeding dairy or work stock can save taxes by using the cash method. If you are unable to pay all your bills, you can pay only those which give you the biggest tax deduction. If by the time you die you leave a lot of livestock or equipment, your heirs pay taxes only on the profit in excess of fair market value at the time.

But suppose you put $2000 into fertilizer for this year's corn, under the cash method. If you don't sell the crop until next year and have few expenses to deduct at that time, this year's advan-

tage might boomerang on you next year. If you sold your 1955 corn in January, 1956, and sell your 1956 corn in December of this year, your income could shoot up and your taxes with it, putting you out on a limb both years. If you build up your herd, selling little or no livestock, but deducting feed expenses and then after a number of years are forced to sell out, your income that year would be out of proportion and your tax would be staggering.

For accrual farmers, income, at least as far as records go, is more even and taxes are averaged out. At year's end, if income has been high and expenses low, you can contract for lime to be spread or otherwise obligate your business financially, even though you don't pay the debt until years later. Since income is reported when earned, whether paid you or not, you avoid the higher taxes that the selling of two years' crop in one year throws as a tax burden on cash-basis farmers. You are freer to await favorable markets. You can deduct for inventory losses through price declines.

Of course the necessary inventories each year for accrual-basis farmers is a headache. Amounts and values of all livestock, seeds, fertilizer and what ever you have on hand must be judged. Some of the advantages of the accrual method turn into disadvantages in later years. Expenses incurred now might hike you into a higher tax bracket next year. If you have an agency like Production Credit set up a borrowing account for you this year to draw against next year for future crops, you pay taxes on the total amount of the loan this year as income, but cannot deduct any crop expenses until next year. When you die, the increased price your property brings might show a big paper profit over your inventory appraisals and cost your heirs a lot of money in taxes.

The system to choose depends on your set-up. If you are continuing in your present method of farming, it might pay you to take the time to figure your current year's taxes and those for several years back by both methods, assuming you have sufficient records. As for choice of bookkeeping methods as well as for whether to hold off tax advantages or not, tax experts usually advise this: Grab the advantage now. Your income, and the law, too, might be different in the future.

Still, you have to look ahead. If this year

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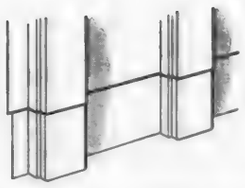

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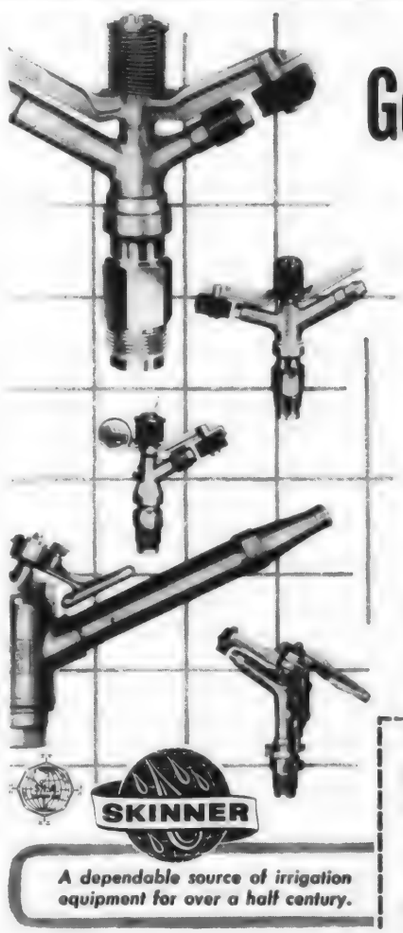

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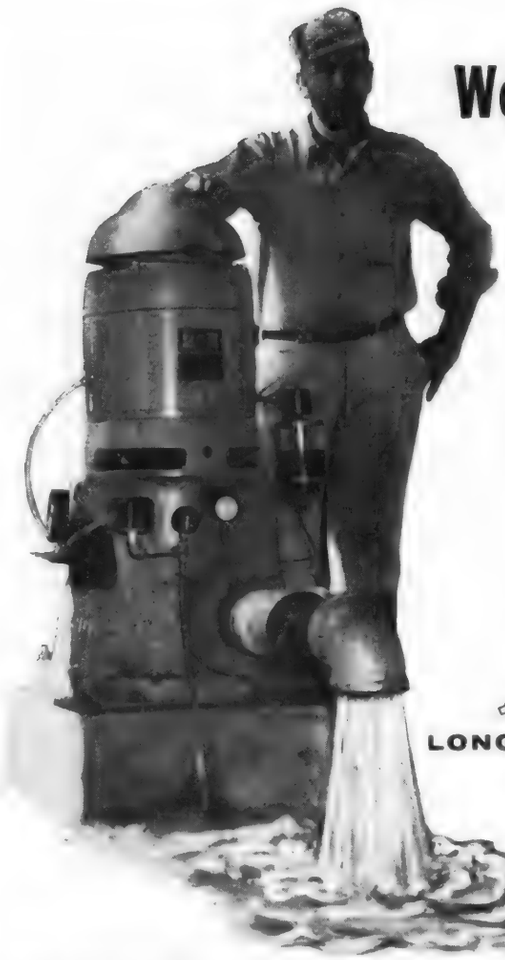

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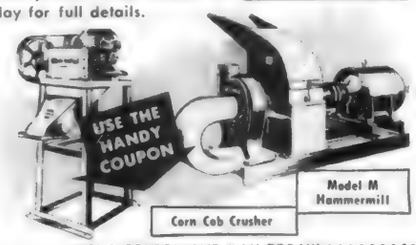

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has been good, and next year's income is not so promising, buy some fertilizer or patch a barn roof before the year's end. If you are on the accrual basis, you don't have to pay for the fertilizer or shingles this year. If you are on the cash basis, it might be to your advantage to borrow the money to pay for such expenditures. The interest, too, on such loans can be listed as an expense.

Reducing this year's income tax by additional expenses can work to next year's disadvantage. If it looks like you will show a loss this year, without even using up your exemptions, purchases should be delayed until after January 1, to jack up your expenses and reduce your taxes next year.

The accrual method tends to level income. The legitimate transfer of taxable income or deductions from one year to another is another method of levelling income. If next year's income promises to be high, and this year's has been low, you might try to unload some of your hogs a bit early, to throw them into this year's income. If you don't want to sell your corn but want the income this year, get a crop loan and report the proceeds as income.

Levelling of income usually saves tax dollars. On the basis of 1956 rates, here's an example: If your taxable income this year is $2000 and you have 3 dependents,

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Keeps water pipes, pumps, etc., from freezing even at —50°. Ideal for use in laying cage troughs. So safe and dependable it carries a 2-year guarantee. Easy to use: apply where needed; plug in. 3, 6, 12, 20, 30, 40, 60 ft. lengths from $2.45. Adjustable thermostat cuts operating cost and makes use automatic. $6.95.

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Keeps water in a shallow trough from freezing at 10°. Made of Line-O-Heat in rust-resistant wire coil. Safe and easy to use: lay in trough, plug in. For 4-6' trough $4.45; 8-10' trough $5.95.

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AUTOMATIC WATERING FOUNTAIN

Strengthened outer bowl makes best fountain even better! Furnished with provision for no-freeze protection to 0°. Fountain, $6.95. Heater, $4.95. Both, $11.20.

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you pay $2 tax. Say you estimate income next year at $4000. You pay $245 in taxes, or a total of $247 for the two years. The same total income of $6000 if evenly distributed over two years of $3000 each would result in a tax each year of $65, or $130 total for the two years. This is about half the $247 under uneven income.

Records are far more than evidence for government inspection. Tax men find most farmers very lax in recording cash purchases. It runs into money quickly. Every dollar you neglect to deduct costs you 20 cents in taxes, or even more if you are in the higher tax brackets. You are really paying $1.20 or more for every dollar's worth of bolts you fail to keep a record of. Look at the tax table. Borderline incomes show up minor deductions quickly. If you have 3 dependents, your tax on a $4000 income would be $245. If you had recorded the 50 cents worth of nails you forgot you purchased, your income would be below $4000 and your tax would be $236, a saving of $9 on that one transaction.

Supplies, feed, veterinary expenses, hired labor and a host of other expenses are deductible. That portion of your phone bill, your electric bill and car expenses that you estimate apply to your farming business, may be deducted. Repairs to farm buildings, except for the house in which you live, are legitimate deductions. Improvements to farm buildings that increase the life of the property are not expenses, but must be added to your capital assets, from which depreciation is allowable. If you repair one side of your barn roof by replacing a few shingles, deduct the expenses for both materials and labor. If the other side of the roof needs complete replacing, you'll have to separate those expenses and consider them as capital improvements. Farmers make their greatest error in reporting tax deductions in listing such capital improvements as current expenses. Actually they don't save in the long run, for capital improvements can eventually be deducted from the profits of property sold, and if held more than six months, only half the profit is taxed.

In listing deductions, don't neglect to include the expenses of business travel. If you go on a three-day trip to buy cattle at an auction, your meals, your lodging, and your transportation are all deductible. Farm magazines and books are also allowable expenses.

Until recently, the cost of heavy applications of lime or fertilizer and the expenses of soil and water conservation had to be spread over a period of years. That can still be done if it proves a tax advantage to you. However, under one of the newer tax regulations, you can deduct up to 25 per cent of your gross income (before exemptions) in any year for all land improvements that come under approved soil and water conservation practices. Any expenses in excess of 25 per cent of your gross income may be carried as an expense in future years with no time limit. If you spend $3000 to build a pond, you can deduct up to $2500 of the amount as an expense this year if your gross income is at least $10,000, and deduct the remaining $500 next year. Under this ruling come expenses for planting windbreaks, clearing brush, drainage practices, terracing, and any other treatment or movement of earth. Costs of drainage tile, pond piping, and concrete dams are specifically excluded and must be set up in a depreciation schedule.

Depreciation

Expenses you *can't* deduct include the purchase of equipment, the purchase of breeding, dairy and work livestock, new buildings or improvements to existing buildings or any personal expenses. You cannot include the cost of your car, even if wholly used for farm work. All such purchases have to be capitalized, which means that the cost is divided by the expected number of years of service of the item in question, with the original cost decreased proportionately each year. If you buy a grain elevator, paying $300 for the elevator, and the freight charges come to $10, your cost is $310. If, in your estimation, you can expect 10 years of use from the elevator, you are entitled (but not required) to depreciate the elevator to an amount no greater than one tenth of its cost per year. Consequently you would

Largest husking capacity of any mounted picker. Ten 40⅜" husking rolls give you clean corn. Caster wheels take weight of big husking unit off tractor's back.

Does the quickest, slickest, cleanest job of picking you ever saw

New Idea 2-row mounted picker has features that gave 1955 record of 17% less corn loss than all other pickers.

Want to pick clean, husk clean? Then watch this 2-row mounted picker at work.

Farmers' choice. NEW IDEA pickers are favored by farmers throughout the corn belt. For the simple reason that this and other NEW IDEA pickers get more clean corn from the field. And you'll be interested in the proof.

17% less corn in the field. We say you just can't afford *not* to own a NEW IDEA picker. Why? Because in 1955 picking contests, NEW IDEA pickers left 17% less corn in the field than all other pickers. That's a lot of corn, worth a lot of profit. The 2-row mounted picker has all the features that helped to establish this record.

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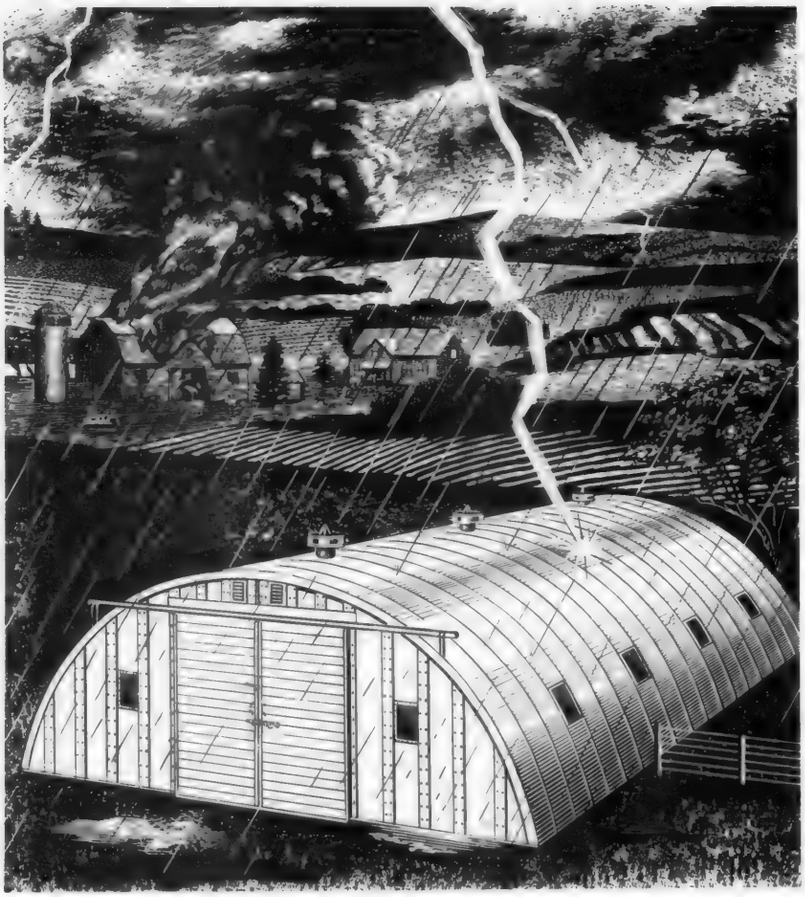

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deduct $31 from your gross income as depreciation. If you live in a state which charges sales tax on all purchases, the amount of the sales tax cannot be considered as part of the original cost, but you may list the sales tax as a deductible expense in the year you acquire the equipment. Essentially, depreciation is an allowance for the wear and tear on equipment which declines in value as used in your business. Buildings, breeding, dairy and work stock, fences, and that portion of your family car which by fair estimate is used in your farming business, may all be depreciated.

Depreciation can be a tricky business. There are at least three ways to handle it. By the straight line method, the cost of capital items is divided by their estimated length of service in years to determine the amount of depreciation permitted each year. This arrangement tends to level off your deductions. The declining balance method permits up to double the straight line method the first year. On the purchase of a $2000 baler, expected to last 10 years, you could depreciate up to $200 per year under the straight line method. With the declining balance method, you could deduct up to 20 per cent the first year, or $400. Each succeeding year you could deduct up to 20 per cent of the remaining value of the baler. At the end of one year the baler would be considered worth $1600, so the second year you could deduct up to $320, and so on. Other depreciation methods acceptable to the tax department are seldom used by farmers. Land cannot be depreciated.

A few years ago, a new regulation permitted farmers the choice of depreciating or writing off grain structures, such as corn cribs, in 5 years instead of having to spread the depreciation over the expected normal life of the structure.

What difference does it make what depreciation method you use or how fast you depreciate your property? It can save your skin in a rough year. Or you eventually will pay through the nose if you write off too fast. Let's say your son accumulates a nest egg and rents a farm and puts his money in equipment. Maybe his crops do well and he winds up the year showing a good income, but it is all due as installments on the equipment. There's no money to pay the income taxes if he depreciates by the straight line method. By depreciating under the declining balance procedure, he shows greater depreciation deductions and saves paying a high income tax. However, once having started this method, he can't change methods without permission. Several years from now, his depreciation deductions will total less than at present, and if his income is still high, his taxes will also be up there.

Any depreciation method is a case of robbing Peter to pay Paul. The case is similar if items are estimated to have too short a life. The minimum is three years. If that $2000 baler which should last 10 years is estimated to have only 3 useful

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- Provides complete fire protection even in coldest weather.
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The handle in this position shows at a glance that the water is positively shut off and is your guarantee against leakage and freezing.

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No. 4 FROST-PROOF CLOSET

Will never freeze. A great convenience when installed in an outbuilding or on a rear porch of a residence.

A real water saver. Vitreous china bowl is durable and easy to keep clean and will never freeze. No mechanism in tank to get out of order.

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taxes, can be reduced by capital losses. Only half the profits from such dealings are taxable, but if you sell capital assets at a loss (profit or loss being figured on the basis of all losses against all profits for the year on such transactions) you may deduct the entire loss. This provision in the tax law applies only to capital property held over 6 months, except that breeding, dairy and work stock must be held over 12 months. Of course you'll consider terms like "capital assets" a lot of government gobbledegook, but once you've tussled with your own profit and loss computations, you'll be talking that way yourself. You can't get away from it.

If you frequently buy or sell what might be considered capital assets, a tax consultant usually can save you money. It is his job to know the ins and outs of the law. On borderline cases, he'll advise you to take the advantage in your favor, for Internal Revenue examiners concede that a tax expert should rightfully work to your benefit. For example, if you sold your entire dairy herd at a big profit, he might advise you to put the money into a beef herd, paying no taxes at all on the dairy herd profits under the "like-kind" rule. Exchanges of farm real estate also come under this rule. Let's assume you bought your farm years ago at $5,000. If you sell it for $10,000 and invest the money in bonds, you pay a tax on the $5,000 profit. However, if you swap the farm for another farm of $10,000 or greater value, you don't pay any tax on your profits on the first farm. This gives you a chance to expand or better yourself without undue current tax burdens.

Tax consultants, in considering your income tax, can often extend advice that might save your heirs taxes in future years. Suppose you give your son a farm to benefit by gift taxes, which are lower than inheritance taxes. To minimize the gift taxes, you value your $300 an acre land at $100. If your son ever sells the farm, its cost to him will be based on the $100 an acre value you placed on it. Suppose he sells it for $400 an acre. He'll have to pay income taxes on a $300 per acre profit or a long term capital gains tax on half the profit if the farm were held 6 months or more.

Reporting Income

Any products sold are, of course, income. Work done off the farm, whether paid in cash or in produce, must be included, to the cash value of the goods received in place of cash. Rent in cash, or in the form of meat or produce, must also be reported. You need not list the value of food consumed on the farm if you do not include as an expense the cost of raising the food. Veterans benefits don't have to be reported, but income from government bonds and any interest from corporate stocks and personal loans or mortgages must be included.

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DOES HERD TESTING PAY

(*Continued from page* 57)

Owner-Sampler program. Extension Dairyman J. E. Stallard points out that the cooperative central laboratory which most counties operate and the overall supervision which D.H.I.A. testing associations have given Owner-Sampler testing has made it a respected and helpful method of studying herd production. On January 1, 1956, there were 170,467 cows on Owner-Sampler and 88,107 on D.H.I.A. in Wisconsin.

In Dane County, Wisconsin, one of the typical dairy counties in this state that produces enough milk every day to float an ocean liner, Assistant County Agent Bernard Connors and Holstein Freisian Feldman Frank Cairns have organized the testing so efficiently that 500 herds are under the wing of Owner-Sampler and standard D.H.I.A. testing supervisors. They have 19.5 per cent of all the cattle in the county on the programs sponsored by 3 cooperative associations. Says Bernie Connors: "The Owner-Sampler program has enabled us to put twice as many herds on test as we used to be able to handle, because the testing supervisor doesn't have to spend the night on the farm. He stops by and picks up the samples and talks over any problems the dairyman has, then does the Babcock test in the laboratory maintained in the county office building in Madison. We have a combination deal, too, in which the tester spends the day at the farm, weighs the milk, takes the samples for butterfat tests. He does this every other month. These bi-monthly tests are calculated 30 days back and 30 days ahead. The Association accepts this as a standard record with a notation of the bi-monthly basis and it is sent into the state, then on to Washington."

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The nation's leading farm management organization will save you time, worry and expense. *Write for details.*

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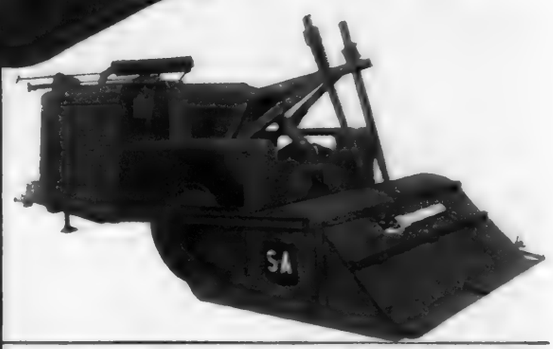
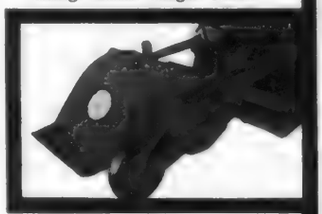
NEW SEAMAN-ANDWALL ROTARY TILLER CUTS HORSEPOWER REQUIREMENT UP TO 28%

The NEW "SWEDGE-EDGE" TINE

First point of impact with the soil is at this point. Greatest horsepower load is imposed at the impact-moment. In the new tine initial impact is confined to a very small linear distance with a BIG reduction in horsepower. Because of pitch and rake the tine then has a slicing action along the sharpened edge to the full tillage depth. It cuts soil rather than "pushing" it, another relief in horsepower demand. The tine is completely self-cleaning and self-sharpening. Much longer lived.



Motorized Pull-Type Tiller. Gasoline or diesel powered. Requires only a medium sized tractor for towing. 7 ft. tillage width.



THE SEAMAN-ANDWALL TILLIT
Operated by P.T.O. mounts to most 2-3 plow tractors. Makes highly efficient use of tractor power. 3 ft. tillage width.

It's all in the new tine design — by SEAMAN-ANDWALL — the greatest reduction in horsepower requirement in the history of rotary tillage. Every tillage job now is done better with a cut in horsepower up to 28% — or more.

More than ever the SEAMAN-ANDWALL ROTARY TILLER provides higher production with much lower fuel costs . . . Works tighter, tougher soils and sod easier . . . Gives you faster forward travel . . . more acres of perfectly prepared tillage per day.

In fact — every type of work — turning in cover crops, chopping and mixing-in standing corn, clearing land of heavy brush, renovating pastures — all are now accomplished at such savings in time, labor and fuel that SEAMAN-ANDWALL Tillage is by far the lowest cost method of superior soil-fitting.

Send for the NEW SEAMAN-ANDWALL CATALOGUE.
Describes NEW "SWEDGE-EDGE" Tine. Shows all models with complete descriptions and specifications.

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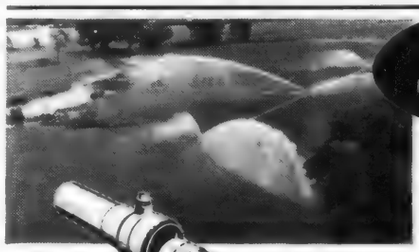

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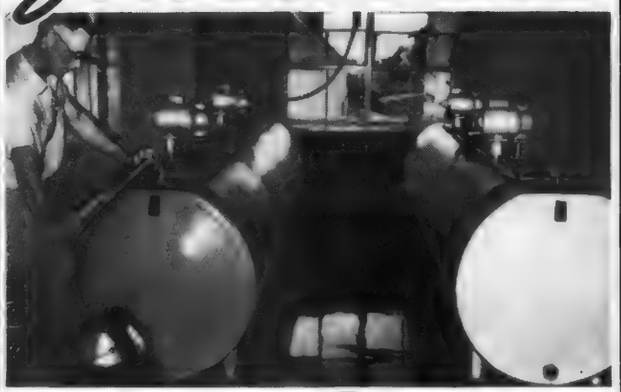
Zero BULK TANK



"Here's Why Our 2 400-Gallon Tanks Are Zero Vacuum Tanks"

says T. A. Burgeson, Jr., of Burgeson Farm, Grandview, Missouri. One of the largest producers of quality milk in the Kansas City Area, milking 60-70 cows.

"We plan to go to direct cow-to-tank milking in the future, and we know our Zero Tank will work fine that way without having to buy expensive releasers, milk pumps, etc. Until we do though, we're using Zero's Super Strainer and getting vacuum-refrigerated milk. We don't have to lift or pour milk any longer with the Zero Super Strainer. It works just like sucking milk through a straw . . . a real labor saver."

Takes Less Than ½ Hour to Clean Tank and Accessories

"You don't need any special schooling to clean a Zero Tank. It's a lot easier than cleaning several milk cans."

Vacuum and Fast Cooling Has Improved the Quality

"Zero's combination of fast cooling and positive vacuum is the best I know of. We're getting more good milk and more money for it."

Electric Bill $12 Less First Month

"After changing to a Zero, our electric bill went down $12 the first month. Our Zero has cut our milking time, too."

"Will Pay For Itself in 3 Years"

"The way Zero is increasing our profits and cutting our costs, we figure it will pay for itself in three years. That's a mighty good investment for any dairyman. And our two Zero tanks are so well-built, they'll give us trouble-free service for years to come."

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Zero SALES CORP.
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the bi-monthly sampling is quite accurate, within two per cent of a standard test. For the dairyman who is in business for milk production more than for breeding stock sales, it will do the job. The basic costs of Owner-Sampler are: $3.00 to join the Association, and that is a lifetime membership. Then for a herd of 10 cows, it costs $24 a year. For each additional cow it costs $1.80. If the dairyman is on the combination deal with the test supervisor doing the work every other month, it will cost him for the tester's time and mileage about $50 a year extra. All the forms and supplies are furnished by the Association. One of the reasons farmers—and farm wives—like this testing plan is that they don't have to provide a room and meals for the tester as they do when the herd is on official test.

"In our cattle sales, we find that a calf brings more if the herd is on Owner-Sampler. One of the highest prices paid for a heifer this year came from an Owner-Sampler tested herd. A first-calf heifer sold for $300. A two to six-months-old calf will bring $15 to $20 more from a tested herd, say $50 to $75. Without a test on the dam, the calves will bring just about veal prices."

Out on the milking line, Ed Terrill of Route 1, Waunakee, Wisconsin, has been on Owner-Sampler since he started farming after the Korean police action in 1951. He milks from 30 to 50 Holsteins and installed a Steinhorst 400-gallon bulk tank last spring. He figures the 25 cents premium and 5 cents he saves on hauling will pay for his tank in the next 2 or 3 years. He says, "I ship 400,000 gallons a year and the Owner-Sampler gives me all the information I need to cull out the duds. As our cows freshen, Mrs. Terrill keeps the records and we can sell every cow that doesn't produce well on her second freshening. We dump the milk right out of our Surge milker into a stainless steel pail, stir it up well and take the sample."

Official Testing

Official Testing includes two systems of production testing designed by the dairy breed registry organizations for breeders of registered dairy cattle. They are: Herd Improvement Registry Testing and Advanced Registry.

All Official Testing is under the general direction and supervision of the breed registry organization Superintendent of Advanced Registry. In the various states, the Superintendents of Official Testing have charge.

Official Supervisors are authorized representatives of the state agricultural colleges and are appointed in the various states by the state superintendents of Official Testing to supervise the tests. These representatives observe each milking during the test periods, weigh the milk and test samples of it for butterfat content. Reports of the tests, after being approved by the Superintendent of Official Testing in the state, are forwarded to the breed registry organization.

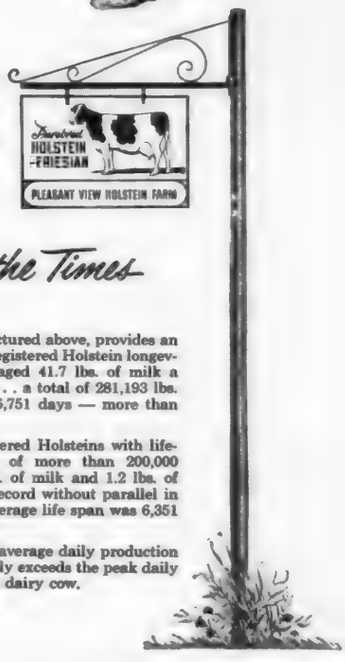
The breed registry organizations furnish all necessary blank forms, receive applications for entry, issue all certificates and publish the records. The Purebred Dairy Cattle Association and the American Dairy Science Association approve the rules used for Official Testing. The booklet, "Unified Rules for Official Testing," gives these rules for each breed of cattle and is available from the breed association offices which are: The American Guernsey Cattle Club, Peterborough, New Hampshire; The American Jersey Cattle Club, 1521 East Broad Street, Columbus 5, Ohio; Ayrshire Breeders' Association, Brandon, Vermont; The Brown Swiss Cattle Breeders' Association, Beloit, Wisconsin; The Holstein-Friesian Association of America, Brattleboro, Vt.

In the Advanced Registry type of testing, a breeder may enter one or more selected registered cows at any time for lactation records of either or both 305 or 365 days in length. Daily milk weights must be kept (this is optional with Jerseys) and test periods are preceded by a preliminary dry-milking.

The Herd Improvement Registry provides a breeder with a method of testing the entire registered herd at the lowest possible cost consistent with reliable supervision. The test is for one year and may be started the first of any month. No daily milk weights or preliminary dry-milkings are required.

Production credits for both types of official testing are published at regular intervals and at the close of the test. Certificates

REGISTERED HOLSTEINS



average more milk PER DAY OF LIFE

The realistic yardstick of *milk per day of life* (average daily production from birth to death, with no allowance for growing or dry periods) underscores the extra profit potential of Registered Holstein longevity.

The Registered Holstein cow's unrivaled ability to produce and reproduce at a profitable clip year in and year out — reflected in overwhelming Registered Holstein domination of outstanding lifetime production records — provides a significant key to greater dairy profits under today's conditions.

Registered Holsteins are bred to last longer — to return your investment over and over again. Registered Holstein longevity will make more money for you.

Sign of the Times

Pansco Hazel, the cow pictured above, provides an outstanding example of Registered Holstein longevity. This great cow averaged 41.7 lbs. of milk a day from birth to death . . . a total of 281,193 lbs. of milk in a lifetime of 6,751 days — more than 18 years!

In a recent study, Registered Holsteins with lifetime production records of more than 200,000 pounds averaged 35.7 lbs. of milk and 1.2 lbs. of fat *per day of life* — a record without parallel in the dairy world. Their average life span was 6,351 days — nearly 17 years!

This tremendous level of average daily production from *birth to death* actually exceeds the peak daily production of the average dairy cow.

Registered HOLSTEINS *Breed of the Times*

fit the farm...fit the market

HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA

BRATTLEBORO, VERMONT

Cut Feeding costs up to 40%

If you feed Hogs, Cattle, Sheep or Poultry you need a BELL "Modern" Hammer-Mill to get the most profit out of farming.

GRIND YOUR OWN GRAIN & ROUGHAGES

Cut feeding costs and increase the weight of stock animals by feeding home-grown, GROUND shelled or ear corn, with or without shucks, oats, wheat, alfalfa, clover and soy bean hay. A BELL "Modern" Hammer-Mill will do it for as little as ¾ of a cent per hundred pounds. 1000 pounds of properly ground feed often produce as much Milk or Meat as 1250 lbs. of unground feed, thus the highest possible Feeding Value for growing pigs, and other stock animals is obtained at the lowest cost per pound of increased weight.

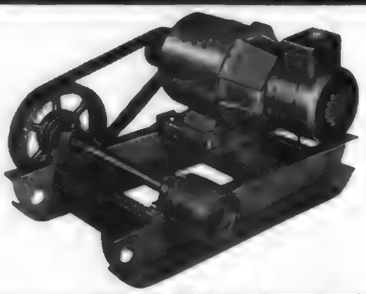
SAVE MONEY ON GRINDING COSTS!

BELL HAMMER-MILLS are made for ELECTRIC or ENGINE POWER, in 2 Universal, Low Cost Sizes. Capacities up to a ton of shelled corn thru a ¼" screen, or 1400 lbs. of ear corn thru a ⅜" screen, per hour. Write today for full information.

BELL'S NEW MODERN HAMMER-MILLS

THE C. S. BELL CO. Mfrs.
Dept. F. HILLSBORO, OHIO.
CORN SHELLERS HAMMER-MILLS FEED MIXERS

Your Own Low-Cost
ELECTRIC POWER



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Don't risk power line failures. Enjoy the many benefits economical Pioneer Generators bring to your farm. Complete gasoline engine portable power plants as well as tractor driven models bring you *electric power when you want it, where you want it.*

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Get our free catalog. Over 40 models from 500 watts to 12KW units designed for farm use.

Name .....

Address .....

Town .....

of production are issued by the breed registry organization to owners for individual cows on Advanced Registry test and to owners of herds completing a year's record in the Herd Improvement Registry.

Fees and Cost of Supervision

Advanced Registry—The entry fees vary with each breed and are paid in advance to the breed registry organization. The current prices for the various breeds are given below:

Breed	Annual Testing Fee	Initial Record per Cow	Re-entry per Cow
Ayrshire	(No. A.R. Testing)		
Brown Swiss		$ 5.00	$ 5.00
Guernsey	$5.00	12.00*	12.00*
Holstein	5.00†	10.00	10.00
Jersey	10.00	10.00‡	10.00‡

* Under AR Herd Test, all cows without previous record must be entered on AR Herd Test as they freshen, and the fee is $5.00 per cow. The Guernsey Club is discontinuing A.R.H.T. January 1, 1957.
† Exempts 4-H Club members from annual testing fee when parent has paid such fee for that year.
‡ Refunds one-half of fee if record is discontinued in less than 90 days.

The costs of supervision and the visit of the tester to the farm are established by the college supervising the tests and vary in the different states. The owner pays the college the costs of the regular tests and such retests as may be made at his requests. The breed registry organization pays the college the costs of automatic retests and any special tests as ordered by them to substantiate the records.

The supervision cost for each test is variable by states. In Ohio, with more herds on Official Test than any other state, the H.I.R. supervision cost per test approximates $12 per day for the 1 day test ($14.50 if the supervisor takes meals and lodging at *his own* home) or $17.50 for the 1½ day test, which is necessary when the preliminary dry-milking check is required. (This costs $21 if the supervisor takes meals and lodging at *his own* home.)

H. I. R.

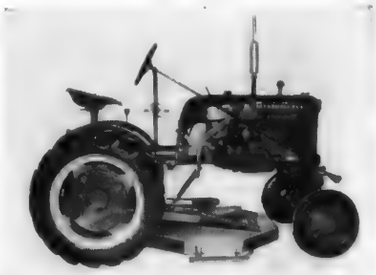
Herd Improvement Registry entry fees are paid in advance to the breed registry organization. The current prices are as follows:

Breed	Minimum per Herd	Per Herd per Year	Per Cow per Mo.	Per Cow per Year
Ayrshire	.	.	$0.23	.
Brown Swiss	$5.00	.	.	$1.00*
Guernsey	.	$5.00	.	3.50†
Holstein	20.00	5.00	.	1.50*
Jersey	6.50	10.00	.	2.50‡

* Based on the number of registered cows in the herd that have ever freshened at the beginning of the HIR test year and payable on that date.
† Payable as cows freshen.
‡ Based on the number of cows in the herd that have ever freshened by the first test in each HIR test year, and payable in advance.

Costs of supervision are established by the colleges supervising the tests, and like Advanced Registry, they vary in different states. The owner pays the cost of the regular tests, automatic retest (Holsteins excepted), one surprise test, if made, and such other retests as he may request.

"A NECESSARY FOR GOOD FARMING"



B. D. Harter of Oklahoma City, Oklahoma has a Wood's Model 42C Rotary Mower-Shredder mounted on a Farmall Cub. And he says, "Have had no trouble with it – it's a necessary for good farming." That's because Wood's PTO-operated Rotaries shred stalks, brush, residues, prunings . . . cut small trees . . . mow grass, clip pasture . . . and mulch leaves. They do it faster, at lower cost and with less maintenance than by other methods.

12 MODELS – 42" to 114" Cut

Models available in hydraulic lift or drawbar pull-type – easy adjustment from ground to 14" (most models) high. 1, 2 and 3 alloy spring steel blade models – staggered to overlap for cleaner cutting. V-belt drive absorbs shock – shielded PTO and bevel gear drive heavy enough to take tractor's full power. Equipped with 3/16" boiler plate housing, 13" drop center wheels or 8" with non-pneumatic rubber tires. All working parts enclosed.

SEND POSTCARD FOR FREE FOLDER

WOOD BROTHERS MFG. COMPANY
13609 S. 4th Street · Oregon, Illinois

Surge

PLATE-TYPE STRIP CUP

Detects Mastitis EARLY

Catch mastitis IN TIME, save damage to cows and milk. Small first flakes show up plainly on Surge Plate-Type Strip cup. Protect your cows and production. © B.B.C. 1956

SEE YOUR SURGE DEALER

BOSTROM IMPROVED FARM LEVEL

Accurate, Durable and Complete for Terracing, Ditching, Irrigating, Tile Draining, Grading, Running Lines, Turning Angles and etc.

The Bostrom is used and endorsed by Schools, Extension Service & Individual Landowners everywhere.

Anyone can operate a BOSTROM Level by following the simple direction booklet included with each Instrument. We manufacture 3 models; Farm Level, Contractors Level, Convertible Level. All BOSTROM Levels are sold on the guarantee of satisfaction or money back. WRITE TODAY for literature, prices and name of our distributor near you.

Bostrom-Brady Manufacturing Co.
534 Stonewall St., S.W. ATLANTA, GA.

. . . business-minded dairymen know

FEEDING QUALITY PAYS DIVIDENDS

(and quality means Purina)

Here are some important things business-minded, profit-conscious dairymen everywhere must always remember . . . they cost too much to forget!

1. Some of the costs of making milk with cows do not vary with milk production. Fences, buildings, equipment and much labor remain constant irrespective of production per cow or per herd.

2. Some costs of dairying vary only slightly between cows of high and low production. Bedding, medical treatment and the feed a cow eats to keep alive are examples of these.

3. A few cost items vary widely between high and low producers . . . these include the feed and roughage a cow eats to make milk.

But YOUR MILK CHECK, REPRESENTING MOST OF YOUR INCOME, IS BASED EXACTLY IN PROPORTION TO THE AMOUNT OF MILK YOU DELIVER!

This means it is essential that every cow in your herd produce all the milk she is capable of producing, for as many years as she can!

Purina Chows, produced under laboratory control and guided by 30 years of on-the-farm research, give your cows the nutrients they need to make milk in quantity, year after year! Other quality Chows in the Purina line supply your calves, heifers and dry cows with vitamins, minerals, carbohydrates, proteins and fats . . . vital body-building, energy-boosting building stones they need to grow, to recover from past milking periods, build unborn calves, and store up strength for lactations ahead.

Your investment in capital, labor and cows justifies a quality feeding program backed by research . . . the famous Purina Program for Dairy Cattle used by thousands of dairymen wherever dairying is big business. See your Purina Dealer for details!

RALSTON PURINA COMPANY

Do you milk 50 cows or more? If so, write for your copy of "TIPS for BIG Dairymen," prepared especially for the absentee owner of the big dairy farm.

RALSTON PURINA COMPANY
Checkerboard Square
St. Louis 2, Missouri

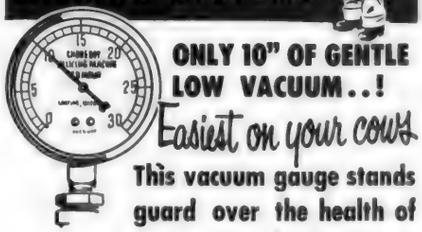
Please send me my copy of "TIPS for BIG Dairymen." (D-5280)

Name .....

Address .....

Town ..... *State* .....

THE BEST HERDS ARE MILKED WITH
LOW-VACUUM
CHORE-BOY
PIPELINE
MILKING SYSTEMS



ONLY 10" OF GENTLE LOW VACUUM..!
Easiest on your cows
This vacuum gauge stands guard over the health of your valuable herd.

Send postcard for
FREE DAIRY BARN PLAN KIT

- LONG- AND SHORT TUBE MILKERS
- PIPELINE MILKING SYSTEMS
- MILKING PARLORS • RELEASERS

Write Department 15

FARMER-FEEDER CO., Inc.
Cambridge City, Indiana

The breed registry organization pays the cost of surprise tests after the first one, and any other special tests ordered by them to substantiate the records.

Testing On H. I. R.

Among the old timers in H.I.R. testing are five brothers who live near Marysville, Ohio. The Bouics, Hensen, Pearl, John, Fay and Eugene, are still operating the home place, which has been in the family since Grandfather Bouic came from Pennsylvania, 120 years ago. To this farm they have added considerable acreage and now 700 acres of gently rolling land supply the pasture and grain for two herds of Holsteins, totaling 80 milkers, and 50 to 75 heifers and young bulls. Their lives and their dairying are free of frills. They have had an objective of high production cattle and they have never been stingy with the time or money it takes to travel this road.

When you see the big milkers come rushing up to greet any one of the brothers you realize there is more than a twice a day meeting over the milking machine between these dairymen and their animals. And when the brothers talk about their cows and their feeding and farming you sense the respect each brother has for the other's skill and ability.

Gathered in the freshly limed milking room of the home place on a hot July evening, the brothers relaxed and mopped their faces. It had been a rush, milking with the threat of the power going off

CONRAD ROUENS

Leading prize strain; 9 lbs.

50% Fall Savings.

Profit Book—25c.

11500-FQ EDGERTON RD.
MILWAUKEE 14, WIS.

NETS $1.76 MORE PER CWT WITH

GOLDEN GUERNSEY

John C. Malley, owner of Indigo Hill Farm, Inc. Somersworth, N. H.

Superiority of Golden Guernsey Milk made the big difference for Malley. Last year, he sold to a local dairy — low profit margin. Now, under the Golden Guernsey program — his own route, 600 qts. daily. Net: $1.76 more per cwt! Read Malley's story in *free booklet.*

***Hurry! Send for* FREE BOOKLET!**

The American Guernsey Cattle Club
656 Main St., Peterborough, N. H.
Send free Guernsey booklet and other useful information.

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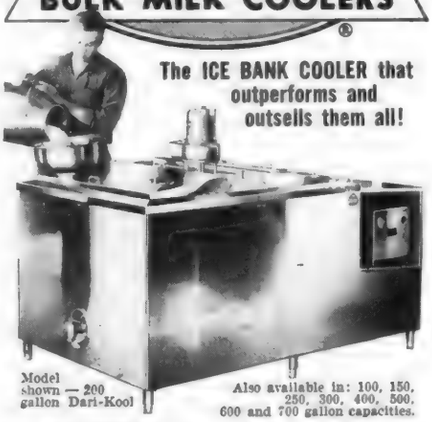
Address .....
Town ..... *State* .....

"IF YOU SPENT A THOUSAND DOLLARS MORE - YOU COULDN'T BUY A BETTER COOLER THAN DARI-KOOL!"

says
PHILIP ROETHLISBERGER
R. 1, Belleville, Wis.

DARI-KOOL
BULK MILK COOLERS

The ICE BANK COOLER that outperforms and outsells them all!



Model shown — 200 gallon Dari-Kool

Also available in: 100, 150, 250, 300, 400, 500, 600 and 700 gallon capacities.

Cools Milk Fast and Economically — and NEVER FREEZES MILK!

Milk is rapidly cooled to below 38° assuring a lower bacteria count and better milk. The milk cannot be damaged by freezing — because *Ice Water Can't Freeze Milk.*

Dari-Kool tanks are much easier to clean because the inner milk tank with its moist, refrigerated side walls retards the formation of troublesome milk stone.

Dari-Kool tanks are built of stainless steel —inside and out (not ordinary painted black iron).

Compare them all and you'll choose a farm-proven, guaranteed Dari-Kool — America's largest selling bulk milk cooler.

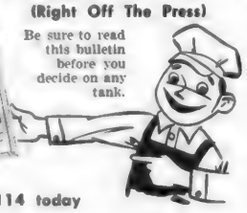
Just ask any Dari-Kool owner.

DARI-KOOL MEETS ALL 3A SANITARY STANDARDS

Send today for our new

FREE CATALOG
(Right Off The Press)

Be sure to read this bulletin before you decide on any tank.



Write Dept. 114 today

DAIRY EQUIPMENT COMPANY
1444 E. WASHINGTON AVE., MADISON 10, WISCONSIN

with a string of 40 to 80-pound-a-day cows to milk by hand. Now they were finished and the milk was cooling and the echo of thunder was a pleasant enough sound, for it meant another good cutting of alfalfa was coming along.

Said older brother Hensen: "H.I.R.? Yes, it has been our best sales talk. We get just about twice as much for our bulls and heifers that we sell as we would without testing. People just don't want a bull that doesn't have an official record behind him."

To this Pearl added: "Our bull sales were good last year. We sold 25 because we were able to show H.I.R. records on their dams. We have sold 3 bulls to the Northern Ohio Breeders' Association and we are very interested in their young bull proving program. Our bulls sell for $300 and up depending on the production of the dam. At the Holstein Association sale at Wooster in May we got $410 for the bull we had up. The top bull brought $500. Last fall we sold one of the year-old bulls to Colombia, S. A. They wanted more, but we didn't have them. The year before they took 19 of our animals for air shipment."

Eugene fished into a show trunk and brought out a thick looseleaf notebook. Here was each cow's production record mounted in a plastic case. As he thumbed through it, he pointed out: "We are not so much interested in a one-year record as we are in a ten-year lactation. I would rather have a cow that could do 600 lbs. a year every year under our farm conditions than one that had 1000 lbs. in one year under a program that would have babied her along."

John talked about their heifers and equipment, "We thought a hay drier was the piece of equipment that would make better hay. Now down at the other farm they thought a hay crusher would help them do the best job. Both are good. But since we don't bale much of our hay, the drier certainly is the thing that helps us make high quality forage. And there is no other single item in the dairying program that is as important in making milk as good forage. We have two upright silos here and there are two down at the other farm. We can haul silage back and forth if we run out on one farm while we still have some left on the other one.

"Calves are on whole cow milk for the first month, then they go on Calf Manna until they are 6 months old. Then they are on good pasture, no grain until after they are bred at 15 months." Of the real good alfalfa hay he kept in one of the lofts, he said, "I don't dare feed them too much of this or they won't eat any grain."

Fay's face lighted up when he talked about the testers who had come to the farm, "We have had some real fine boys testing through the 21 years we have

RUSTPROOF TROUGHS
NON-SYPHONING DESIGN

Fairfield
STOCK-O-MATIC
AUTOMATIC
LIVESTOCK WATER FOUNTAIN

Exclusive

FIBERGLASS DRINKING TROUGHS
Rustproof, dentproof, shrinkproof, chipproof; easy to clean; won't cut or scratch animals.

HEAT MISER RED PILOT LIGHT
Safeguards electric bill. Eliminates need for tools or thermometer to set thermostat.

NEW ADVANCED SEALED-IN RADIANT HEATING
Insures efficient, uniform heating.

CAN'T BACK SYPHON
• water inlet 1" above overflow level.

4 CATTLE DRINKS
2 HOG DRINKS

Automatically

- provides clean, fresh water year-around.
- keeps water warm and ice free in winter.
- handles 250 hogs and 150 cattle.

BUILT BY MAKER OF FAMOUS FAIRFIELD LO-BOY FOUNTAIN

WRITE DEPT. FQ FOR NAME OF DEALER

FAIRFIELD ENGINEERING CO.
FAIRFIELD, IOWA

One More Step Toward Money-Making Milking

NEW *Surge*

all stainless steel

DAIRY SCALE

60-lb. capacity calibrated in tenths

FOR

1. Keeping Cow Testing Records to get rid of the "boarders."

2. Matching Feed to production.

© B.B.C. 1956

SEE YOUR SURGE DEALER

Jersey... the breed with all the extras

Extra early maturity
Extra production efficiency
Extra adaptability
Extra ease of handling
Extra longevity
Extra style and beauty
Extra valuable milk

The earlier maturity of Jerseys means they are working for you sooner than other breeds. Their extra production efficiency means they will produce more milk per pound of feed or per pound of body weight.

Records indicate Jerseys have greater longevity and that they hold up better in production during hot weather. On pasture they have the "go" that harvests the grass and makes that extra profit per acre. In the barn their extra style and beauty and their greater ease of handling delight every Jersey owner.

It would pay you to look into the extra opportunities of owning registered Jerseys and producing All-Jersey Milk. Write for information today.

The American Jersey Cattle Club
FQ955A 1521 East Broad Street
Columbus 5, Ohio

Gentlemen:

Please send me additional information about registered Jerseys and All-Jersey Milk.

Name.....

Address.....

Post Office.....State.....

been on H.I.R. Some of the best are the University boys in Ag school who test on the weekends to earn their way through school. Working with the cows fits right in with what they are studying; they get practical experience and we get good ideas. H.I.R. is the test that is most practical for us. It means more than Owner-Sampler and it is less expensive than A. R.; the tester isn't on hand so long to run a preliminary dry-milking."

One of the bulls that the Bouics credit with the build-up of their herd is Carnation Imperial Ormsby Pontiac No. 747117. He was purchased as a calf and shipped directly from Carnation Farms, Seattle, Washington. He has 16 daughters so far that have produced over 100,000 pounds of milk on 2x milking.

What Kind of Testing?

The kind of testing a dairyman wants to go into should be worked out by examining his own operation. For building up a herd and getting the information on production and efficient use of feed, the Owner-Sampler and D.H.I.A. will do a good job for the commercial dairyman, or the man who wants to sell stock occasionally to his neighbors. If the dairyman has a pure-bred herd and anticipates going into a breeding and selling program, then an official testing program, either H.I.R. or Advanced Registry, may well be his choice.

In an analysis of Guernseys sold at auction in 1955 cows two years old and over with official records averaged $402, while those without records from untested dams averaged $228. Those from tested dams averaged $323.

Many a dairy farmer's reaction to herd testing has been "I can't afford it." But when he looks at the Milk Industry Foundation figures and sees that the national average per cow is 5512 pounds of milk and 243 pounds of butterfat, the first question he should ask himself is, "How many of my cows are producing 6000 pounds of milk and 250 pounds of butterfat?" That generally is the break-even point for losing or making money on a dairy cow. Only about 5 per cent of U. S. cows are on test. That means that the other 95 per cent are made up of good cows, poor cows, and just plain "boarders." And the boarders are eating the boarding-house keeper—in this case the farmer—out of farm and home. In times of surplus and high operating costs, the most important target for a dairyman to shoot for is high production per cow. And testing brings out the facts of life about each cow and is one of the best tools for increasing the herd production level.

THE AUTHOR: L. W. Jacquemin, as a college student and later as a graduate of Ohio State University, has been a test supervisor most of his working life. Received the National Dairy Products top tester award in 1939 and 1940. After his return from service he was employed by the University as an assistant to Prof. S. M. Salisbury in the Ohio Official Testing program and in 1947 was named superintendent of the program. A World War II notable, he was promoted from private to captain and won the bronze medal and five battle stars in the European theatre.

ALL-RUBBER FEED TROUGHS
for all livestock

They are rugged—tough and flexible—crushproof, rust-proof, leakproof and weatherproof

They are safe—soft and smooth—no sharp edges, nails or splinters to injure valuable animals

They are versatile—can be used for all methods of feeding and watering—have many other uses as all-purpose containers

They are easily handled—light in weight—can be tossed about without damage—stack-store in small space

They are economical—low in cost—long in life—require no maintenance

GOODYEAR
THE GREATEST NAME IN RUBBER

-------- FILL OUT COUPON FOR DETAILS: --------

THE GOODYEAR TIRE & RUBBER COMPANY, INC.
Molded & Extruded Goods Dept., Los Angeles 54, Calif.

Please send me full information on ALL-PURPOSE, ALL-RUBBER LIVESTOCK FEED TROUGHS in ½-, ¾- and 1½-bushel sizes.

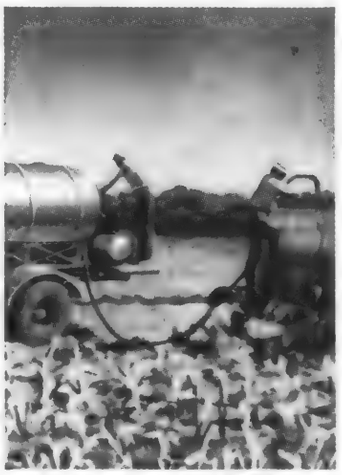
Name_____

Address_____

City or Town_____ State_____

ALUMINUM

—the ideal metal for liquid nitrogen fertilizer applications



The amazing new nitrogen compound liquid fertilizers do a wonderful job on your crops. And they do it inexpensively. But they're mighty hard on applicator equipment—unless it's *aluminum.*

Unlike other metals, strong, lightweight and rustproof aluminum resists the tremendous metal corroding effect of these nitrogen solutions. This resistance to corrosion means longer life for applicator tanks and fittings. Plugging and fouling of valves, tubes, pumps and spray heads is substantially reduced.

Aluminum's light weight makes equipment easier to handle—and its heat reflectivity keeps solutions cooler. All these advantages of aluminum are equally important in applicator, storage and transport tanks.

Aluminum fertilizer applicator equipment is available from a number of well-known manufacturers. For the names of those nearest you write *Reynolds Metals Company, P.O. Box 1800-CF, Louisville 1, Kentucky.*

The Finest Products Made with Aluminum are made with REYNOLDS ALUMINUM

REYNOLDS METALS COMPANY

See "FRONTIER", Reynolds exciting dramatic series, Sundays, NBC-TV

DURUM WHEAT

(*Continued from page* 49)

the winter of 1954-55. The approximately 8100 bushels of seed resulting from this planting were sold to North Dakota farmers on a contract basis that summer at a price that covered the cost of production, about $7.50 per bushel. The contract stipulated that the durum would be grown only for seed and that the fields in which it was grown would be handled with the same care as other fields growing certified seed. The 239 farmers who participated in this program turned in 120,000 bushels of seed wheat that fall and the durum area had 4 good, new, certified varieties of wheat, each of which is resistant to race 15B.

A mere 2 pounds of seed (about 1/30 bushel) of 32 unknown strains had been tested, improved and increased into 120,000 bushels of certified, high-quality, 15B-resistant seed wheat in exactly 3 years. Only the professional plant breeder can fully appreciate the magnitude of this accomplishment.

The new varieties were named Langdon, in honor of the principal city of the durum triangle; Yuma, in recognition of the county in Arizona where the final winter increase took place; Ramsey and Towner, after two of the big durum growing counties of North Dakota. Of the four, Yuma appears to have the most resistance to 15B.

The breeders are not sitting back reading their press notices. Their work is going right along. They are tightening up their defenses against 15B, preparing to battle new races of rust, working for higher yields, trying to breed the tall-growing durums down to a more convenient size with shorter, stronger straw.

While the plant breeders and their cooperators were furiously racing against time to come up with resistant varieties, the macaroni and spaghetti manufacturers found themselves with a peck of problems, too. Their products are made from semolina, a material which is milled from durum and which is more granular than flour. Semolina and water are the chief ingredients of macaroni and its cousins. The semolina and water are mixed, kneaded, pressed through a die and dried, a process which calls for much more strength and resistance in the semolina than can be found in the bread wheat flours. Also, the macaroni buyer likes a yellow-colored product which only the durums can produce.

But as the manufacturers saw their raw material supplies drying up they turned to any new method, any substitute material that offered a hope of keeping them in operation. As North Dakota's ten-year pre-15B average yield of 31.5 million bushels of durum dwindled to 5 million bushels in 1954, and with no reserve to fall back on, they were desperate.

In 1953 they resorted to a blend of 50 per cent durum and 50 per cent other products in making macaroni. By the next year many of them were reduced to a blend in which only 25 per cent was durum. Technicians went to work and developed a new vacuum press, which, instead of pushing the dough through the forms, sucks it through, thereby using mechanical means to produce a smooth, uniform product which could not be turned out when the weaker doughs were subjected to the old methods. Still the price of durum shot up to a premium of more than $1 per bushel over the other hard red spring wheats and seed shortages were aggravated by the manufacturers' scramble for semolina.

As a result of this crisis Congress finally came to the belated conclusion that durum is something more than just another wheat. Last year farmers in traditional durum counties were told they could plant as much of the grain as they wanted. But since there was pitifully little seed available, this was but a gesture. This year the government announced that any farmer in the durum counties could substitute 3 acres of durum for each acre of his bread wheat allotment that he gave up. In other words, a man with a 50-acre wheat allotment could plant 150 acres of durum if he planted no other hard red spring wheat. What the effect of this invitation to go all out in durum production will be is hard to determine at this time. Certainly, even

if the maximum acreage is seeded and yields are normal or better the market should be able to take every bushel of durum produced for immediate use, export and for reserves.

The failure to recognize durum as a unique class of wheat led to a whole series of disasters. When the stem rust epidemic struck there were no reserves of durum. The consequences were: an immediate shortage of seed and milling supplies; abnormally high prices; the loss of the export trade; a million-acre shift to barley, oats and rye on diverted durum acres, further aggravating the surpluses in these crops and putting more pressure on storage space and box-car facilities; and the development of new machines and techniques adapted to the use of durum substitutes by the macaroni industry.

As a result of the latter factor alone durum wheat may have lost forever its preeminence in the macaroni field. It is still the favorite of the manufacturers, but there will now be very definite limits to the premiums they will offer for it over the price of other hard red wheats.

Durum culture is no different from the methods used with any other spring wheat in the sub-humid regions of the west. Summer fallow is a general practice. Clarence Bruns, a durum grower in Barnes County, down in the southeastern tip of the North Dakota durum area, is an old hand at the business. This is the way he operates.

"The 15B got so bad," Bruns says, "that finally no more than a small percentage of the farmers in the county grew it any more. But I can't remember a year when we haven't grown it on this place, so I stayed with it.

"We summer fallow. Used to plow with a one-way plow in the fall, but we've come around to plowless fallow. We use a subsoiler with a 12-inch spacing between the chisels; put the chisels down 10 to 12 inches to let the water in during the winter. You have to keep the surface rough to prevent blowing. Then the next spring we space our chisels 14 inches and go over the field again. During the summer we'll go over the field five times or more.

"Durum does better as a second crop after fallow," Bruns continues. "It is a tall wheat and rather weak strawed and has a tendency to lodge if it gets too much moisture. And we've found that 15B seems to do more damage on durum that follows fallow. So we generally plant another wheat or flax the first year and then come along with the durum.

"We plant about five to six pecks of seed per acre with a press drill and use 60 to 70 pounds of 0-45-0. Planting time is any time the weather will permit after the middle of April. It used to be that we planted our other wheat first. Now we know that the durum should go in first. It matures later than the other wheat so the earlier we can get it started the better chance we have of protecting it from serious damage by 15B.

"The first part of June the field is sprayed with a half pint per acre of 2,4-D to get the broad-leaved weeds; and that's all till harvest time.

"Everybody combines out here, but you can't combine direct. The grain ripens unevenly and weeds are bad. So at harvest time, which is usually between the middle of August and the first of September, we cut the crop with a swather, which lays the wheat in windrows. After four or five dry days in the windrow the moisture is down below 14 per cent and we combine.

"Our average yield here will run around 19 bushels an acre in normal years. We store most of the crop right here on the farm. We have four 2000-bushel bins and a 3000-bushel granary, so we dump the grain in and take a loan or purchase agreement. Never have any trouble with weevils. What brings them on is putting your grain in when it is too high in moisture."

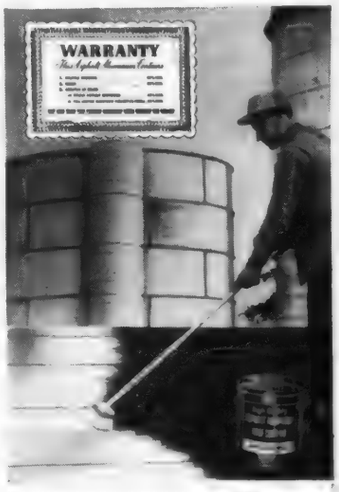
Bruns puts about 170 of his 766 acres into durum every year. The rest of the land is in summer fallow, hard red spring wheat, oats, barley or flax. He came through the 15B epidemic with a few light crops and now has a sizeable acreage in the new Langdon 15B-resistant variety, besides his old favorites, Sentry and Vernum.

Here are two examples that show how you can get

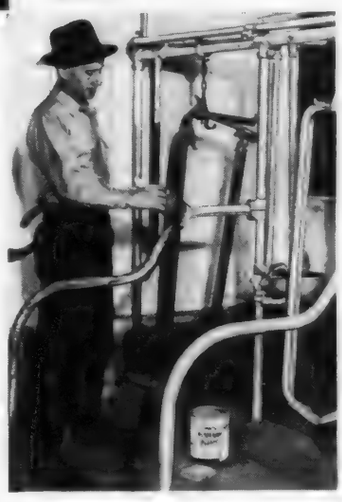
MORE PROTECTION AROUND YOUR FARM

with

ALUMINUM PAINTS AND COATINGS



Asphalt-aluminum roof paints and coatings extend the life of built-up and rustable metal roofs. Moisture is sealed out by a coat of pure aluminum so rusting and deterioration are retarded. Livestock is healthier, too, and can maintain production because aluminum reflects sun's rays to make interiors up to 15° cooler in summer. (With regular aluminum paint on inside surfaces, animal body heat is held in for winter protection.) To be sure you get a quality brand, look for the Warranty Seal on the can. It's your assurance of an approved asphalt vehicle with at least two pounds of metallic aluminum pigment in every gallon.



One coat of quality aluminum paint on barn interiors, metal building exteriors, stanchions, tanks, piping and field equipment will protect against moisture, rust and corrosion. Indoors and out—in countless places around the farm—aluminum paint makes surfaces brighter, better looking, easier to keep clean and more durable. It's just like putting on a bright, shining coat of liquid aluminum! Use aluminum paint around your farm to protect and add new attractiveness to buildings and equipment. Leading makes of aluminum paint are made with genuine Reynolds Aluminum Pigment. Send coupon for free booklet of uses and application suggestions.

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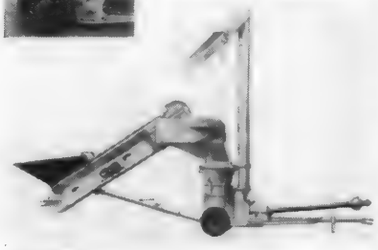

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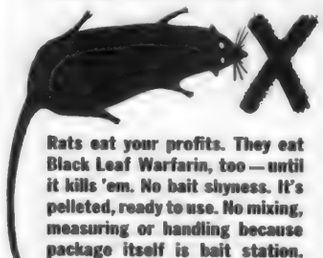

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PRODUCTION LINE METHODS FOR SILAGE

(*Continued from page* 53)

30-foot diameter circle of silage into 8 pieces, like the wife does with blackberry pie. Then in the morning I take 4 pieces out, alternating ones. In the evening, in another 15 minutes, I get the other four.

It even turns corners! This feeder made by Clay Equipment Corp. can be coupled with a silo unloader to do the whole feeding job at the push of a switch.

We feed an inch or two a day and the spoilage is less than in any silo I've ever used. The silo cost right at $4200 ready to use and as far as I can see in using it a year and a half, feeding out of it every day, it's the answer. There is no mess like you get with trench silos and no matter what kind of weather we have, it's there for the cows to eat, without plowing through the mud.

"We feed it every day of the year except for the time when new silage is curing. Then we feed some green chopped stuff. Some people have put small electric conveyors up in these big silos to carry the silage to the door, but just about all of the silage is within a 10-foot throw from

This is a New Holland "800" chopper at work on the Earl Hoober farm in Pennsylvania. Its 8-foot swath and 69-h.p. Continental engine give it a whopping big 45-ton per day capacity.

one of the four doors and I don't mind that. The self-feeding bunk around the silo is where you save time."

These are the methods that successful feeders and dairymen have worked out. No one of them would say that an identical set of equipment would fit another operation. But all of these farmers have contrived methods of taking the backache out of silage. And that's the main reason farmers don't like handling it in bulk.

"My Farmhand 'Power-Box' can't be beat for feeding or forage handling!"

COMPLETELY MECHANIZED FEEDING with the Farmhand 6-ton "Power-Box" Feeder is proving its value to hundreds of farmers every day. Feeding costs are cut as much as 50% . . . milk production goes up and stays up . . . beef cattle gain solid, meaty pounds faster. One man can do the whole job, because the "Power-Box" mixes the feed thoroughly and discharges into bunks as you drive along. This 16" auger-type Feeder is especially suited to beet pulp, molasses mixes and high moisture content feeds.

FEED GREEN OR DRY RATIONS, the Farmhand "Power-Box" Feeder will do the job best. This Feeder attachment has an 18" belt-type discharge conveyor—adjustable extension elevator is optional. Two rugged steel beaters thoroughly mix the feed . . . every animal is assured same ration—with less wasted feed.

FARMHAND 4-TON FEEDER is the ideal unit for smaller beef and dairy farms. The construction and operation are the same as the 6-ton model; only the cost and capacity are lower. The 4-ton "Power-Box" Feeder has a 12" auger-type discharge elevator that can be adjusted to bunk height. Both "Power-Boxes" convert to Feeders, Spreaders, Forage Units.

FASTER FORAGE AND SILAGE HANDLING with less work is assured when you use the big 6-ton "Power-Box" with high, flared Forage Sides. Bigger capacity means fewer trips to and from the field . . . famous Farmhand construction means less "down" time and fewer costly repairs . . . smooth PTO-unloading saves time and work at the silo. The Farmhand 6-ton "Power-Box" has aluminum sides, treated marine plywood floor, worm-gear driven floor conveyor. It mounts on truck, Farmhand Heavy-Duty Wagon or Farmhand Tandem Trailer for year 'round use.

SMOOTH PTO UNLOADING is a big feature of the Farmhand "Power-Box", whether you're using it as a Feeder, Spreader or Forage-Silage Unit. Here's the Forage Unit at the blower. Power unloading does the work while you stand by and watch. Still, you're in control as handy clutch lever starts and stops operation instantly. Your blower works at full capacity.

Ask your Farmhand Dealer for a demonstration today!

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WORK-FREE FEEDING! Here's the machine that makes it possible . . . the Clay Mechanical Feeder. And the man responsible for this labor-saver has answered the questions most farmers ask about feeding mechanically. Is your question here?

An expert answers your questions on

Mechanical Feeding

by Joe Clay

MECHANICAL FEEDERS, the wonderful machines that feed cows automatically without hauling, pitching or handling feed, are still so new that dairymen and feeders want specific answers to certain questions *before* they invest. Here are some questions I hear most often, and the answers I give about mechanical feeding:

How long will it take to fill a 50′ bunk to feed 35 to 40 head? Roughly 15 minutes, but this depends on how fast your silo unloader delivers silage to the auger and the amount of silage you distribute.

What kinds of feed will the mechanical feeder handle? All kinds of silage, chopped hay or straight grain feeds.

Will it mix grain and silage so animals won't pick out tasty feed and leave roughage? It mixes far better than you could by hand.

Is this practical for a dairyman with 15 to 20 cows? Definitely! Cost is low. You start with only enough auger for your present herd. It's easy to add sections later.

How much power to operate? Roughly 2 to 4 cents per day.

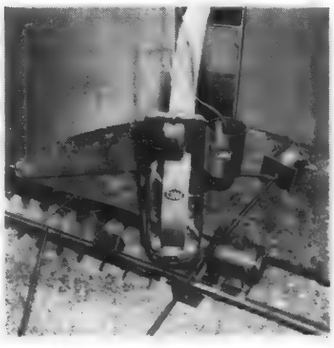
Are special bunks necessary? Not with the Clay Feeder. Use old bunks 42″ or wider.

My silo chute faces the barn—how do I handle that problem? Your feeder can curve as much as 90 degrees into the yard.

What if the feeder blocks access to the silo for filling? Easy! Just take out sections. Plan for it at installation.

How about a mechanical feeder in a loose stock shed? Excellent practice! Location of your present silo and grain supply are factors to be worked out individually. Send me a sketch of your layout and I'll help you. *(Advertisement)*

MECHANICAL FEEDER BULLETIN FREE! For the complete story on Mechanical Feeding, write for Joe Clay's new bulletin for dairy farmers. The address is: 968 Fulton St., Cedar Falls, Iowa. Booklets also available on Silo Unloaders, Barn Cleaners, Crop Driers, and Milking Parlor Stalls. (Please specify book wanted.)



SILO UNLOADER—by the Clay Equipment Corp. Ideal companion to the Clay Mechanical Feeder. Unloads silo automatically . . . right into the feeder. The perfect pair for faster, easier farming.

MECHANICAL FEEDER—a contribution to easier farming by Clay Equipment. Feeds up to 100 head in 15-30 min. without hauling, pitching. Saves time, labor and feed for the dairy farmer or cattle feeder.

WILD HONEY

(*Continued from page* 66)

then split out the block, exposing an excellent supply of sealed honey and hundreds of bees. We fired some rags and used the smoke to drive the bees off the honey, then sliced it in blocks and filled our pails until they were heaped high. While we worked the bee army, which had been reinforced by many from the inside, continued its attack. However, there was one group of warriors which never joined the battle. They were tightly clustered around the queen at the upper end of the opening, ready to defend her with their lives.

We filled our pails, leaving sufficient honey in the log for a new start for the swarm. As we were gathering our tools, we noticed the arrival of the first of the enemy, the black ones. There were only two or three at first, but in less than five minutes there were scores of them. It was evident that they were raiders from another swarm who had been attracted by the smell of honey and were intent upon taking it by force.

The yellow ones rallied immediately to meet this new danger, a danger which they understood better than they understood our attack. Soon those which had been buzzing around our heads left us and joined the furious battle. Yellow ones and black ones fought on the log, on the ground, and in mid-air. The black intruders were big and tough looking, but the yellow ones, who had already known disaster at our hands, seemed determined to sell their lives dearly.

But the warriors clustered around the queen had remained apart from the battle. Forming themselves into triple ranks they had encircled her and sat facing outward. Suddenly a band of the black ones formed a wedge and advanced toward the queen. The outer circle of the royal guard immediately fell upon them and there was a tangle of black and yellow bodies. They battled furiously for a few minutes; the yellow ones prevailed—the black ones were all dead. But several of the queen's soldiers had also died. The survivors reformed a circle around the queen, and then, to our astonishment, other yellow ones came to stand in the places of those who had died.

But there was no need to defend her again, for the black ones who had remained alive and able to travel, suddenly beat a retreat. The yellow ones were victorious, but it had been a costly victory. The battleground was strewn with the bodies of their dead and those of the black raiders. But the honey we had left was intact and most important of all, their queen was still on her throne.

We were silent and subdued as we walked away from that scene, carrying almost one hundred pounds of honey. Never before had we witnessed such raw courage as that displayed by the yellow ones. We had plenty of honey, but I was no longer proud of it. Maybe it was because I was feeling guilty—guilty of robbing such courageous creatures.

When we had arrived at home, we set ourselves to the task of straining the honey. First, however, we set aside some clean, well-sealed comb which would not be strained. That was especially for me. I like it that way with hot biscuits and butter, and I've found that there are many people who go along with me in my choice of the comb just as it comes from the tree, with all the fragrance intact. After my comb was set aside, we placed the remainder in clean, white, cloth sacks, then squeezed the sacks with our hands. It sounds messy, but after experimenting with different methods, we have found that to be the most effective one for straining wild honey. The strained honey comes out a golden brown in color and absolutely free of all trash and comb. When we had strained the honey from the comb, we saved the mashed comb. We would use it to draw bees from other trees so that we might course them and find more honey.

I went back to the tree the next afternoon. The honey we had left had been eaten and the yellow ones were knotted in a great ball around their queen. I was sure their departure was near at hand. There was no longer an angry buzzing. In its stead there was a steady hum—the contented song of a little people ready to forget the past and begin life all over again.

I sat on the log to watch for a few moments. Suddenly, as if at a given signal, the swarm arose and spiraled upward until it had reached the treetops. It hovered there for a moment, then set its course westward. I heard the hum of their departure and saw them go away into the sun. In another house they would enthrone their queen and build a new fortune of honey.

THE AUTHOR: (With more charm than we can command Ewart Autry writes his own biographical note—Editor.)

I was born among the hills ten miles from our post office of Hickory Flat, Mississippi. Farmed as a boy. Became a school teacher, minister and writer. The last two have been my life for many years. Spent thirteen years as a city pastor in Memphis, Tennessee. Have been back for a number of years among the hills of my birth—still ten miles from town.

My fiction and fact articles have appeared in the *American Legion Magazine, Elks, Bluebook, American Mercury, Toronto Star Weekly, Country Gentleman—Farm Journal, Progressive Farmer, Lincoln-Mercury Times* and a good many others. I also collaborated with a former prison chaplain on the book titled "In Prison—And Visited Me." (Wm. B. Eerdmans Pub. Co.)

Since thousands of acres of heavily wooded hills come right up to our back yard fence, it's very convenient for my family and me to hunt and fish and find bee trees. That's our play. On each Sabbath we drive over the hills to country churches where I preach. On the other days of the week I marry the living, bury the dead and write thousands of words.

My wife is my general secretary, expert typist, photographer and best critic. When I'm not writing fiction we follow foxhounds, fish grabblers and all kinds of hunters to gather information for fact articles. Sportsmen of this section are accustomed to seeing us at the most unusual places—even to seeing Mrs. Autry wading neck deep in water with her camera held high in order to get an action shot of a huge catfish being wrestled from his den.

It's a great life with plenty of hard work and lots of happiness. Our most peaceful moments come in the nights when the whippoorwills and the horned owls are calling near to our door. We sit beneath the towering trees in our yard and listen to them and sometimes also hear the weird cry of the red fox and the vibrant snorting of a buck deer.

see page 136 for

XMAS GIFT SUGGESTIONS FOR GOOD FARMERS

"My Cobey Self-Unloading Forage Wagon Is The Best Investment We've Made"

says Bob King of Findlay, Ohio

"As a self-unloading forage wagon, it can't be matched. And when we found we could use it for following the combine, the picker, or haul baled hay with it and do all our hauling and cut out our scooping — it turned out to be the best investment we've made."

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From hauling 138 bales of alfalfa to bringing in 5 tons of ensilage at a load — and all the jobs in between — your Cobey 51-B will do them all!

THE COBEY 51-B SELF-UNLOADING FORAGE WAGON — here's the best forage wagon ever built. All steel construction. Automotive type steering and tapered roller bearings for fast hauling — sure trailing. Precision machine cut gears and throw-out clutch operate in oil. 4-chain slat type conveyor. Grain tight floor and 100-bu. sides. Forage sides easily removed — making it a straight grain bed — or remove grain sides for hauling baled hay . . . AND IT IS PRICED AT A SAVING TO YOU! Write for full information.

BUNK FEEDER ATTACHMENT FOR THIS COBEY WAGON WILL SOON BE AVAILABLE.

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BECAUSE: Hale Irrigation Pumping Units are:

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Get a new Dry-Charged Auto-Lite Sta-ful Tractor Battery NOW. Have it ready to go in minutes when you need it! This spare Dry-Charged Auto-Lite Battery assures starting performance at all times for your truck, tractor, automobile, or other equipment. In case of emergency you are protected against costly delays that can hurt the profitable operation of your farm.

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COW HABITS (*Continued from page* 37)

of producing milk than one on a few wisps of straw on a cold concrete slab. A cow is grateful, and pays her debts.

In one thing the cow is contradictory—she is an unerring judge of the nutritional values in her feed, but she'll eat nuts and bolts and poison weeds. If you want to find out where the best grass in your pasture is, follow Bossie the first time she is turned on pasture—she will take you to the best grass—not necessarily the most luxuriant, but the most nutritive. She can serve as a soil tester—you can be sure that the part of the pasture where she grazes only as a last resort, needs fertilizer.

She will stretch her neck through the barbed wire to bite off the top of a weed on the other side of the fence. This is not perversity, as many think, but the effort of an animal to capture minerals not available in the pasture grasses. And the reason a cow will not eat the lush grass around her own droppings is because it is bitter—a cow has a sweet tooth.

Discriminating as the cow is about the mineral content of her vittles, she is equally undiscriminating about the qualities of other items she has been known to eat. Take the loco weed. She seems to have a positive genius for finding the one loco weed in the county. One loco weed will make an incurable neurotic out of a cow—but her colleagues never learn. A cow will eat a lot of hardware, too. How she gets some of the spare parts that have been found in the paunches of deceased cows down her throat is a puzzle. It is known that a cow has never been seen to spit out anything once she has taken it into her mouth. This probably accounts for the amazing collection which a cow will pick up around the barnyard of a careless farmer.

A cow is not averse to taking a nip or two of silo juice if it comes her way. One of the classic binges of all time is reported from Ashland, Wisconsin, where a cow drank a bucketful of radiator alcohol. During the spree she bellowed what she thought was a song, ran everybody out of the barnyard, and experimented with a dance routine. Her hangover was dreadful—hiccoughs and red eyes and all that. Her name was Daisy.

A few years ago it was the fashion to install a radio in the milking shed to entertain the cows while they were being milked. This conceit became quite popular with dairymen and finally came to the attention of a college professor. He saw in it the opportunity for a delightful study. After many months he reported, with graphs and charts and formulas, that the cows didn't give a damn—the milkman enjoyed the music just fine.

There are a good many other little items about a cow's behavior that are interesting but not very important. A cow, for instance, gets up from a lying-down position hind part first. A good many other animals, horses for example, get up front end first. Why this is so, no one knows. Every dairyman knows that a cow empties her bowels immediately after she gets on her feet. Unfortunate as this is, there is apparently very little anyone can do about it.

PRODUCTION STRESSES IN POULTRY

(*Continued from page* 47)

winter and blow out the hot air from the ceiling level during the summer. We can use a built-up litter to keep the floor warm in winter and a thin litter for cooler floors in the summer. We can paint the roof with aluminum or white plastic paint to reflect heat in the summer and hold it in the winter. And, above all, we can provide plenty of clean water in summer.

A final group of stress factors might be called just annoyances, but even they might provide that last straw that sends the hen into a slump when added to a full load of other stresses. Unusual noise that explodes the flock into panic is such a stress. Moving the flock to new quarters could be another annoyance. Feeders and waterers may not be quickly found and the strange surroundings create tension. And, chickens being such creatures of habit, any change in routine from changing feed to changing the time eggs are collected can upset the flock and are minor stresses.

There are ways of compensating for stress. When the flock has to be handled, moved, debeaked, vaccinated or when disease strikes or there is a disastrous change in weather, there will be stress. When such an unavoidable stress comes, feed consumption is apt to drop so the first thing to do is to use every trick to keep the flock eating well. Stress greatly increases the need for vitamins and proteins so the wise poultryman will fortify the ration with a rich vitamin-animal protein supplement during time of stress.

Stress may make chickens susceptible to germs they normally resist. Pasteur, for example, found that soaking chickens in cold water, which is certainly a stress, destroyed their normal immunity to anthrax. So, feeding antibiotics during time of stress is wise since antibiotics help the birds fight secondary invaders and also increase their appetite.

Minimizing stress and relieving it when it is unavoidable is not an expensive process, but the economic returns for this good poultry management verge on the fantastic. By adding proper ventilation and providing enough feeder and water space so that there is no stress due to competition for these necessities, a poultryman can practically double the capacity of his coops. This just about halves the fixed investment per hen. By watching all of the controllable stress factors a poultryman should be able to average 260 eggs a year from each hen he puts in the coop at the beginning of the season; the average poultryman gets around 160 for each hen housed. This means that the good manager will make as much on 1000 birds as the average poultryman makes on 4000.

THE AUTHOR: Robert B. Wallace is one of the Wallaces of Iowa. He is the president of Wallace Hy Cross Hatcheries of Doylestown, Pa., which is the eastern distributor for Hy-Line chicks. Robert Wallace is the son of Henry A. Wallace, the former Secretary of Agriculture and Vice-President, and a brother to Henry B. Wallace, one of the pioneers in producing hybrid chickens.

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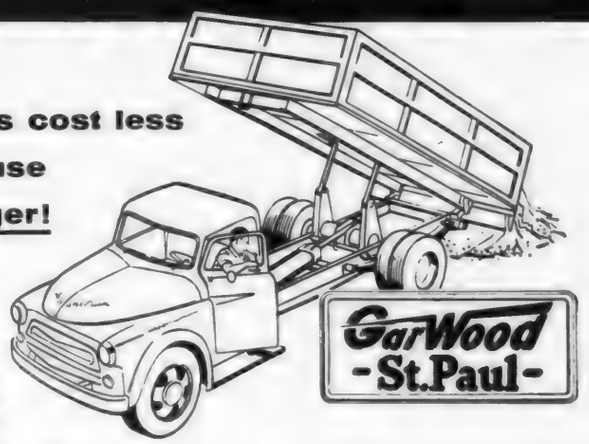

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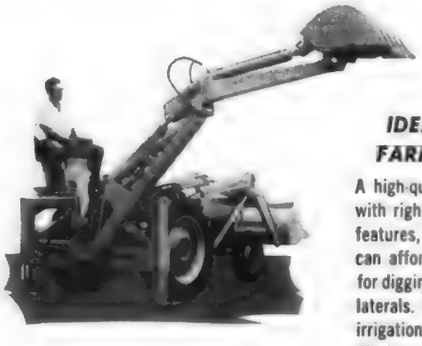

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THE MARKET BASKET DOLLAR

(*Continued from page* 75)

shadowing all of the economy. Today, workers in unions number around twenty million. The prime purpose of these organizations has been to bargain for better wages for their members; in this they have been very successful.

Since 1947, when the freeze was taken off wages, unions in the food industry have been able to get raises amounting to 55 per cent. Only a part of this increased wage rate, 40 per cent, has been reflected in the unit price of food, however. Labor productivity during this same period has also gone up. In other words, each worker is now paid about half again what he received in 1947, but he uses more efficient methods and machinery and does about a quarter again what he was able to do then.

In addition to the raises secured by the unions, labor costs have been raised by the wage-hour law, which has put a floor of a dollar an hour under the wages of many workers.

Some demagogues have said, "Smash the unions and repeal these silly laws and the farmer's share of the consumer dollar will be a fair share again." History doesn't bear out this advice. When labor was largely unorganized and wages were down to a bare subsistence, the farmer's share of the food dollar hit its all time low. The millions who make up labor, after all, are the very same people who buy the stuff we raise on the farm.

High wages, therefore, stimulate a greater demand for the farmer's produce and, at the same time, compete with him for a share of the food dollar. The farmer might want a situation in which labor in industry was well paid while labor in food processing and distribution worked for less. It never works out this way. As one truck driver said, "It takes just as much skill and sweat to drive a milk truck as it does to deliver beer. If the dairy can't pay as much, I'll get a job with the brewery. Wouldn't you?"

The advertising men, too, have taken a bite from the food dollar. But, they point out, advertising is stimulating a demand for the product. If demand is increased, the price of any given amount of saleable stuff goes up. The trouble here is that the supply of agricultural products has been able to outstrip demand any day of the week. Increasing population may change this picture, but not for several years to come.

A dozen general rate increases have been granted the railroads during the past ten years. These increases have boosted agricultural freight rates an average of 70 per cent since 1945. Livestock and meat shipments have been saddled with the largest of these freight increases—89 per cent since 1945. Rates for wheat have gone up 76 per cent, cotton 74, and fresh fruits and vegetables 54 per cent.

Interstate truck rates have climbed right along with railroad rates. And as for city trucking rates, the U. S. Department of Agriculture points out that it costs more to truck a loaf of bread across New York City than it costs to haul the wheat that went into the bread from western North Dakota to New York. The reasons for these increases in shipping rates are not hard to find. Steel, coal, oil, railroad equipment, trucks, gasoline, tires, labor costs are all well above the 1945 level. The difference between transportation and agriculture is that the haulers are able to pass on their increased costs to the consumer. In doing so they take a bigger portion of the consumer's food dollar.

Built-in Maid Service

Since bread making moved from the home to the factory a half century ago, more and more of the housewive's cooking chores have been taken over by industry. During the past decade the amount of food preparation that is done outside the home has increased fantastically. The packing plants are still canning and bottling food, but it is also being quick frozen, precooked, and pre-blended to the point where cook books are becoming obsolete. Potatoes which used to be sold in 100-pound burlap bags are now delivered to the shopper in 5- and 10-pound nets or neoprene sacks; they are also sold in cans, in powder form for just-add-hot-water-and-serve-whipped-potatoes, and they are french fried

and frozen. Pre-cooked, individually portioned dinners are sold, complete with compartmentalized plate, for those who want to cook and eat while they keep an eye on TV, and there are no dirty dishes to keep them from seeing a later show. Forty per cent of all home-baked cakes are now made from pre-mixed ingredients and the woman who can still whip up pancakes from scratch is almost as rare as the one who still slices her own bread. Vegetables are sold, washed and packed in plastic—which has done away with part of the kitchen work and a host of jokes about sand in the spinach. Even eggs are being sold, experimentally, in plastic containers rather than in the shell the hen provided.

Each of these processes involves the added cost of machinery, labor, materials, packages, and power. And this extra cost is, of course, reflected in the price to the consumer and lowers the share percentagewise that the farmer gets. When potatoes were sold in 100-pound burlap bags, the farmer received close to half of every dollar spent on spuds. When they were washed, graded, and packaged in 10- or 20-lb sacks, his share of the consumer dollar dropped. When golf ball sized potatoes are peeled, canned and boiled, the farmer's share drops again. Powdering and pre-cooking and then canning the potato reduces the farmer's share further. And when the potato is peeled, sliced, fried in deep fat, packed, and frozen, these extra services add enough cost to the operation to squeeze the farmer's take to 15 cents out of every dollar's worth sold.

Not all of this processing, however, is pure waste from the farmer's point of view. Pre-cutting meat orders, for example, can be done much more efficiently and at less cost than having a butcher stand behind the counter doing nothing most of the day and then being worked to death during rush hours. Trimming the meat makes it possible to sell a completely edible cut and also make better use of the waste as a byproduct. Freezing perishables saves a fair amount that would normally spoil. Concentrating and freezing orange juice, for example, has saved enough on shipping charges and on spoilage that this has turned out to be the cheapest method of handling the fruit, and consequently the fruit grower's share of the purchase price is higher with the processed material than it would have been. Great effort is being made to increase efficiency and make larger savings in the processing of food. The packers and retailing grocers, because of competition, and the Agricultural Marketing Service of the Department of Agriculture are all engaged in studies designed to cut these costs. On the whole, however, these services have both added a value to the finished product and reduced the percentage share the farmer receives for the raw material.

A New Look at the Farmer's Share

Because so much effort has been made to point out a villain in the economic picture, the proposed scoundrels have all been on the defensive. Packers, chain store executives, labor leaders, and advertising men are constantly speaking and writing on the subject. They, as a rule, either point to their own choice of villain or put up the old defense, "It couldn't be me. There's nobody here but just us chickens." Another tactic is to claim that the whole question of the farmer's share of the consumer dollar is meaningless. "The farmer makes his money on the difference between his costs and what he gets for his product. Not on what the product eventually sells for," they claim. "He'd do better if he just forgot the whole thing and settled down to producing more for less cost."

Is this true or is there a relationship between the farmer's costs, his profit, and his share of the consumer's dollar?

For years now, we have been measuring the farm economy by a yardstick we call parity. Parity is the relationship between what the farmer receives for his products and what he must pay for the supplies he buys. When the parity index is 100, the farmer is considered to be on an even basis with the rest of the economy. When parity goes below 100 he suffers; if it goes much above 100 they start making jokes about the farmer and his Cadillac.

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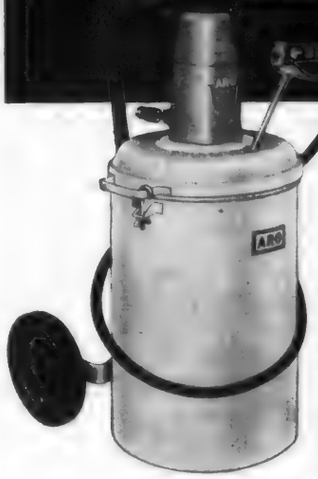

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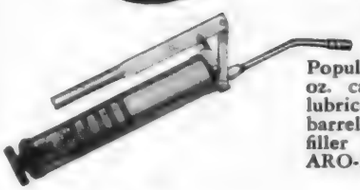

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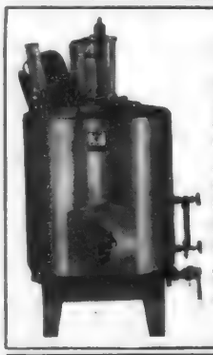
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and oil, the cost of transportation, and wholesaling and retailing charges. Aren't these the same costs which account for the spread between what the farmer receives for his product and what the consumer pays?

If they are, then the farmer's share of the consumer's dollar and the parity ratio should be closely related. Here are the two figures over the past 43 years:

Year	Farmer's share of consumer's dollar (cents)	Parity ratio
1913	46	101
1914	45	98
1915	44	94
1916	45	103
1917	47	120
1918	51	119
1919	48	110
1920	43	99
1921	40	80
1922	40	87
1923	40	89
1924	40	89
1925	42	95
1926	42	91
1927	41	88
1928	42	91
1929	42	92
1930	39	83
1931	35	67
1932	32	58
1933	32	64
1934	34	75
1935	39	88
1936	40	92
1937	42	93
1938	39	78
1939	38	77
1940	40	81
1941	44	93
1942	48	105
1943	51	113
1944	52	108
1945	53	109
1946	52	113
1947	51	115
1948	50	110
1949	46	100
1950	47	101
1951	48	107
1952	47	100
1953	45	92
1954	43	89
1955	41	84

Except for the war years, when subsidies were paid both to the farmer and to the food processer in order to make it possible for them to operate under price ceilings, it appears that there is a close correlation between the farmer's share of the consumer's dollar and parity. In 1945 the farmer's share of the dollar was a big 53 cents and his parity ratio was 109; in 1955 his share of the consumer's dollar skidded to 41 cents and parity dropped to 84. This does not mean that he is getting less money for the items in the food basket; the price of the basket

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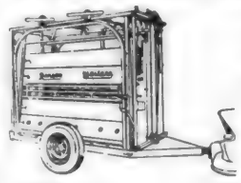
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has gone from $459 in 1945 to $980 in 1955. It *does* mean that the farmer is not keeping up with the rising costs of the rest of the producers in our economy. The lowering of his share and the lowering of the parity index means that prices he pays are going up as compared to the prices he gets for his products. And he can hardly pass on this extra cost as others do because there is a mountain of surplus farm goods ready to fall on him and he hasn't been able to organize to regulate his production. Looked at this way, the lowering of the farmer's share of the food dollar becomes more of an indication of his deteriorated position in the economy rather than something that can be blamed onto any particular villain. It also provides us with another yardstick for measuring the farmer's situation. During difficult times it is like the thermometer that the doctor uses to measure the fever of his patient. And, like the doctor, it isn't the fever that we are trying to cure so much as the general malady.

The marketing margin between farmer's price and retailer's price also suggests some questions as to the cure. Can the farmer be getting more than the thinnest trickle of support when the government buys powdered milk which is made from low priced milk and then processed in costly plants by high-priced labor or when the hog market is supported by the government buying canned pork floating

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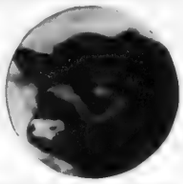

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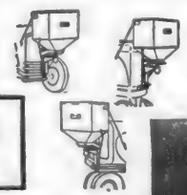

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in gravy? Someone is getting some gravy out of this, but it ain't the farmer.

A deeper study of this spread also convinces one that the laws of supply and demand have not been modified, abrogated or repealed by Congressional fiat or court interpretation. *Every* farmer can't make more money simply by growing more crop.

The solutions aren't easy either. It seems to us that the solution should follow the same road that American business has followed so successfully. Either we organize and strike and force prices up, or we combine and control our production and marketing and force prices up, or we give up a portion of our personal liberty in exchange for large, direct paid-to-the-farmer subsidies which naturally must be geared to farm by farm acreage, crop, and bushelage control. Trickle-down subsidies, like buying tinned hog meat, takes care of the processor and of labor more than the farmer. They are good people, too, but why should the taxpayer's dollar, intended for the farmer, go so far around the bush? The lone alternate is to do nothing and let the farmers kill themselves off by growing more than the market will buy.

ALL YEAR PASTURES

(*Continued from page* 65)

speed to the process. The county agent came out from his office in English one day and suggested to Kaiser that they set up a fertilizer test plot on his lespedeza, redtop, timothy meadow. The results sent Kaiser pouring over his records again and left little doubt in his mind that grasses and legumes were the crops for his hillsides.

The test plot was divided lengthwise down the middle. One half was limed at the rate of three tons per acre. The other half wasn't limed. Then the plot was divided into four cross sections, for a total of eight small plots. The first pair of plots (one limed and one not) was treated with 300 pounds per acre of superphosphate. The next pair received no fertilizer, the third pair 200 pounds of superphosphate, and the last pair 100 pounds.

Kaiser took the first cutting of timothy and redtop off by cutting them high. Later when he cut the lespedeza, he carefully harvested the eight plots individually and weighed the yields which he converted to pounds per acre.

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"I spent the next two nights sitting up late studying those figures," he says. "That was a lesson for me." At this point Kaiser will ask you to wait a minute. He goes into his tool shed where he keeps his Jeep and some other machinery and comes out with a large piece of cardboard on which he has penciled a picture of the test plots and marked in the treatment and yields.

"I worked this up to show visitors," he explains. "I estimate that in the last five years the extension people have brought about 10,000 people here for field days. One day I had them here from eight states and three foreign countries. I had to build stiles so they could cross fences without tearing 'em down. I probably spend a fourth of my time showing people around the place. Don't mind, though. Always thought I'd like to do extension work. But I never had the money to go to Purdue the way I wanted to. My boy made it though. He lives on that 60-acre farm over there, keeps 50 head of ewes and teaches vocational agriculture. All his place is in grass, too."

The cardboard graph of the hay test plots Kaiser shows visitors looks like this:

No Lime	300 lbs.	3 T. Lime
*3388	Superphosphate per acre	*9680
*1936	No fertilizer	*3872
*3630	200 lbs. Superphosphate per acre	*9260
*3630	100 lbs. Superphosphate per acre	*8228

* Pounds of hay per acre.

It was clear enough that with the right combination of lime and fertilizer he could increase his yields five times over yields where his pastures had no treatment. He also knew that the lime and fertilizer cost him $12.50 an acre for the heaviest treatment. "That beats buying another farm," he says, "and having two run-down places to worry about. So I set out to make my yields five times greater without adding any acres."

This was 1940 and he was still trying to grow some corn. But once he found

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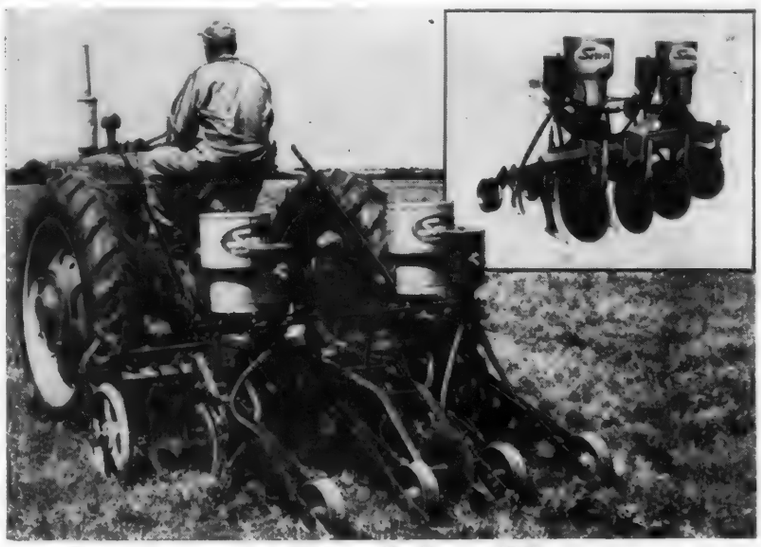

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Pays out in 4 days. Figuring fertilizer at $3.50 per cwt., with 100 lbs. used where 400 lbs. was formerly needed, this tool pays for itself in cost of fertilizer alone when used once on 55 acres of pasture.

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out how to grow big crops of grass he was ready to drop corn as he had dropped wheat. By 1945 he had gradually changed his whole farm to grass crops and his stock to an all-roughage diet. (He owns no plow, combine or corn picker.) Here was a pioneering task to find the right grasses and legumes and combination of them for his hills, his stock, and his limited labor.

"The research stations were no further away than my mail box," he said. Kaiser gathered literature on new crops as they came to his notice. In 1939 he began to hear about a new clover. He sent $3.60 to California for a pound of seed. The following year he bought another 20 pounds at $3 a pound.

This was the first Ladino clover grown in that section of Indiana and visitors began coming in to see the new clover. This led naturally enough to a demand for seed, so Kaiser began selling the Ladino seed he didn't need for building his own pastures.

But he was trying other grasses and legumes right along. Those he has tried make a lengthy list and include: lespedeza (still a major crop on his farm), birdsfoot trefoil, red clover, alsike clover, sweet clover, subterranean clover, trifolium, ambigium, kudzu, vetch, lespedeza bicolor (around his two ponds), rye grass, Bermuda grass, Canada bluegrass, tall oats grass, Kentucky bluegrass, brome grass, orchard grass, fescue, timothy, redtop, Sudangrass, alfalfa, giant lespedeza, and crimson clover.

In drawing from this list of crops Kaiser is not looking for the lone operators, the ones that serve well as individual crops. He wants instead those that do well as team workers. His plan is to plant shotgun mixtures and have such a variety of crops on every field that the field is producing some forage every month of the year.

In an effort to beat drouth by getting more water into his soil he uses a subsoiler to cut 16-inch grooves at 36-inch intervals. Last fall he sub-soiled 35 acres. "Those fields really stored up water during the winter," he said.

"If I were starting out to make a completely new seeding," says Kaiser, "I would plant 4 pounds of brome grass per acre, 5 pounds of orchard grass, 5 pounds of timothy, 3 of redtop, 4 of alsike, and a pound of Ladino."

When the timothy started to run its course, Kaiser would cut in 20 pounds of fescue seed to the acre.

But this problem of starting new seeding seldom faces Kaiser. His pastures keep going indefinitely. As one crop runs out, he cuts another seeding right into the sod.

He watches his fields closely from season to season and when forage yields begin to drop he moves in to reseed. He starts with a once-over operation in the fall. A grass seeder equipped with heavy

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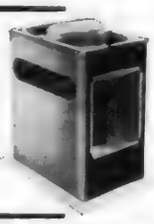

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disk knives strips, right into the sod, a seeding of 5 pounds of fescue per acre, 4 pounds orchard grass, 2 pounds timothy, and 1 pound of redtop. The following spring he moves into the field again and seeds 5 pounds Korean lespedeza and a half pound of Ladino.

Then late the next fall he seeds his pastures with a bushel of Balboa rye, 10 pounds of ryegrass, and 15 pounds of vetch. This insures him an abundance of early spring pasture. Kaiser has little trouble with his livestock cutting up his pastures in wet weather. The rolling fields drain quickly and the thick sod helps support the heavier animals. If constant and heavy rains soften the surface too much, he may keep off the stock only a day or two at most.

He seeds his pastures with a once-over tool of his own design. He mounted a seed box on the back of a five-bladed disk tiller. Behind this he pulls a drag he made by bolting together five old tractor tires. Most of the time he runs the disks straight to keep from tearing up the sod too much and disturbing the crops which are still producing.

For the past two years he has followed an even more revolutionary plan for growing more forage on the same fields. He was searching around for a drouth-resistant silage crop and decided on atlas sorgo. But he didn't want to plow. In fact, he didn't want to destroy his sod, so he figured out a way to strip the sorgo seed right into the sod and grow sorgo in the grass.

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He has grown sorghum two years straight on one of his less rolling hill fields. He has planted seven acres each year and this year upped it to 20 acres. These sorghum producing fields will be seeded to the crop every year and in addition they'll produce clover, a winter crop of rye, oats or wheat, rye grass, vetch and crimson clover. These crops will serve as winter pasture until Kaiser gets the forage chopper he wants and after that some of the excess grass and legume crop from the sorghum fields will go into trench silos.

Kaiser built his own machine for interplanting sorghum in sod. He fashioned it from an old corn planter by first setting the planter shoes in to make 30-inch rows. He equipped the planter with heavy disks to ride in front of the shoes. Then he equipped the planter with new plates to handle the sorghum seed. He pulls the planter with a Jeep and fastens old tire chain drags behind each planting shoe to make a once-over operation. Kaiser seeds four pounds of sorghum seed per acre at four-inch depth.

Every year he spreads 300 to 400 pounds per acre of superphosphate (20 per cent) on half of his farm. On the other half he spreads a like amount of 0-20-20. The next year he alternates the treatment to give each field the same treatment once every two years. He also hauls and spreads on his pasture land some 150 loads of manure every year.

Kaiser still hasn't given up the search for better forage crops. But the line-up he is using gives him year 'round green crops plus ample supplies of hay and silage for the winter months.

In winter and early spring, fescue is his green crop. Rye, ryegrass, and vetch also offer early pasture. About the middle of March, Kaiser's Ladino is ready to graze. By midsummer fescue is tough and unpalatable, but timothy, redtop, lespedeza, and Ladino are working.

By the time his earliest lambs (which come in January) are big enough to follow the ewes, he has green pasture for them. Last winter he had 32 January lambs on rye, ryegrass and vetch pasture by early February. "I pasture them whenever the ground is free of snow or it's not raining," says Kaiser.

"I don't believe in turning my stock out to roam over the whole farm," he says. And this has led him into a system of rotation grazing which works well for his farm. His farm is divided into a series of small fields ranging in size from 3 to 11 acres.

He moves his cattle from field to field depending on the forage available for them. Once they've grazed a field, which usually takes about a week, he moves them

FARM BOOKS RECOMMENDED BY THE EDITORS

Livestock

Feeds and Feeding (21st ed.)—by F. B. Morrison **$7.00**
The authoritative book on livestock and poultry feeding.

Beef Cattle—by Roscoe R. Snapp ... **$6.50**
A carefully revised edition of this excellent book on beef production.

Dairy Science (2nd ed.)—by W. E. Petersen **$6.50**
A new edition of one of the best books on dairying.

The Livestock Book—by W. R. Thompson et al. **$3.50**
This is the sequel to the best selling "Pasture Book." It's a good one.

A Veterinary Handbook for Cattlemen—by J. W. Bailey **$5.00**
For that emergency when you can't reach the veterinarian.

The Hog Annual—by the editors of Farm Quarterly **$4.25**
Complete articles on hog raising and lists of breeders.

Successful Poultry Management—by M. A. Jull **$5.75**
The second edition of this practical book on poultry.

Breeding Better Livestock — by Rice, Andrews & Warwick **$6.50**
Understandable breeding plan for the livestock man.

Farm Management

A Practical Guide for the Beginning Farmer—by Herbert Jacobs **$3.50**
A book to give you an intelligent start in farming.

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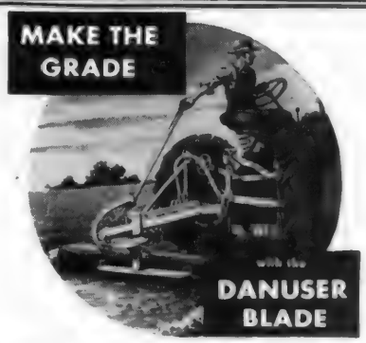

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to the next one. Then he moves the ewes into the first field to finish what the cows couldn't get. The sheep are usually there for another week and they follow the cattle from field to field. By the time the stock has made the rounds the first field is ready to graze again. If his fields are producing pasture faster then the stock can harvest it, Kaiser often skips a field and harvests it for hay. Usually the hay and pasture come from the same fields, and his whole grazing plan is flexible enough that he can move stock or mowing machine into a field when his experienced eye tells him the forages need harvesting.

On one of his fields last year he harvested two hay crops, thirty days of winter pasture, plus some additional pasture between the second hay cutting and the winter rest period.

On pasture fields where Ladino is especially heavy, Kaiser offers his cows extra hay from movable field racks as bloat protection.

When he started producing sorgo he dug a 100-ton trench silo. He cut the crop with a corn binder and chopped it with a forage cutter at the silo. "I did the whole operation myself," he says. This year, when he increased his sorghum to 20 acres, he built a second silo.

His hay making is a one-man job and the location of his feeding barns play an important part in the chore. As he began to produce bigger and bigger forage crops he needed more storage space and more feeding barns. He now has four feeding barns scattered through his fields. "There's no use hauling all that hay into the main barn," he says, "then hauling all that manure back out. "I figure I cut my time in half by spreading my barns out."

If his operation was to be a successful one-man job Kaiser had to eliminate the hand work from hay making. He brought in a hay stacker from the West. He windrows his hay toward the barns and rolls three windrows together. He then hooks the hay stacker on the front of a Jeep and uses it buck rake fashion to pick up three windrows at a time and move them toward the barn. At the barn he lifts the load to the level of a door cut near the top of the barn and dumps the hay into the storage area. Then he backs the Jeep back up the hill and moves the next three windrows in.

Kaiser has been careful not to overstock his farm. He has always tried to have more feed than he needs. His plans are to increase his flock of breeding ewes from 100 to 200 and build up his herd of 20 brood cows to 30. "I can keep a continuous cover on every acre," he says, "and grow enough on my 78 acres to keep that amount of stock."

And there's not much doubt that Kaiser will make his green hills do exactly what he expects them to do.

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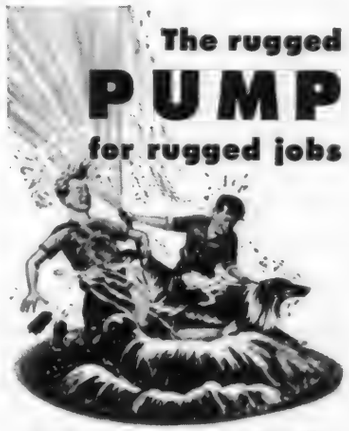

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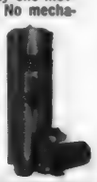

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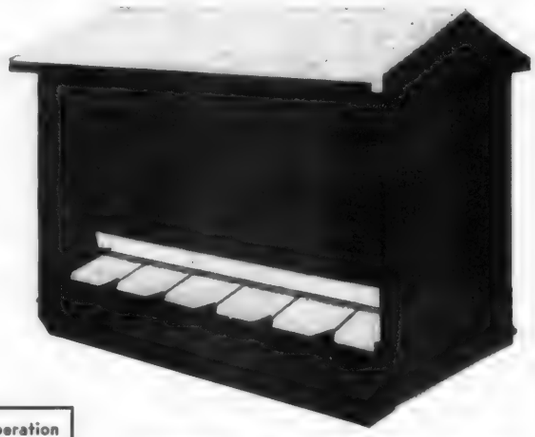

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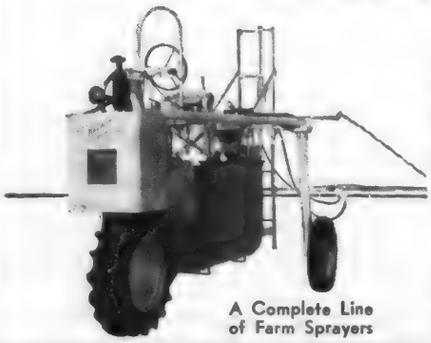

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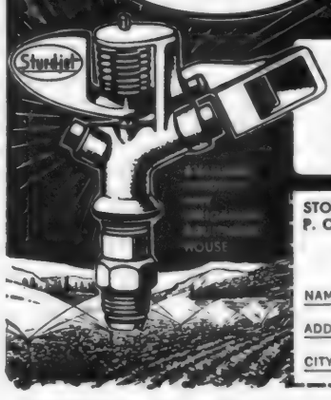

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THE McWHINNEY WAY WITH BEEF

(*Continued from page* 63)

which then deliver their loads to the bunks.

Edgar McWhinney takes nothing for granted in cattle feeding. That is why he handles his feeders in three separate lots. In true scientific fashion he always has a bit of an experiment going on, testing some little variation or other in his ration against a check lot. These little tests have led to some interesting conclusions. Last year, for example, he ran a test from July 1 to November 23 on 100 steers each in 3 lots. One group received stilbestrol with their feed; another got the same amount of stilbestrol plus terramycin; the third group was the control, receiving the same basic ration but no stilbestrol or terramycin. The group on the combination of the hormone and the antibiotic turned in a much better record than either the control or the bunch on stilbestrol alone. They gained 22 pounds more per head during the period; made an average daily gain of 2.30 pounds against 2.15 pounds for each of the other two groups; dressed out 60.96 per cent compared to 58.56 per cent for the control and 58.92 for the stilbestrol group; and their feed cost per pound of gain ran 17.11 cents against 17.35 cents for the control and 18 cents for the stilbestrol group.

From his observations of his cattle when on green feed McWhinney has come to the conclusion that there is little to be gained by adding stilbestrol alone to such a ration. He feels that terramycin will give good results with a high roughage diet when added to the feed at the rate of 18 pounds per ton; that stilbestrol is more effective with a heavy corn ration and that it always gets a valuable assist when it is teamed up with terramycin.

Management experts keep telling the farmer that he must find better, more efficient ways to do his work. Specifically they keep pointing to cattle feeding as one of the projects where the field is wide open for improvement. The McWhinney Way seems to be one approach—use as must roughage as possible, start with light calves and triple their weight in a year.

But while the McWhinney Way of feeding is a big help in showing a profit at the end of the year it is no job for a novice or a man short on capital. McWhinney has 6 tractors and complains that he could always use another one. He has two self-unloading wagons, a couple of dump trucks to use in filling silo, two field choppers and the usual assortment of plows, cultivators, discs, mowers, and so on. And besides all this there is the dehydrator and feed mixer.

With an investment of this size a man either succeeds or he doesn't stay around long enough to tell his story. The McWhinney story has more chapters coming up than a Pearl White serial.

COUNTRY BANKER

(*Continued from page* 58)

pants pocket and with the other rivets attention by twirling a key chain. His eyes follow the effect of his words. His ears listen for the meshing of gears in the client's brain as he talks. A master craftsman at knowing when to keep silent and when to close in for the kill, he learned his trade, not in the bank, but as a used car salesman in Oklahoma. "A knowledge of banking isn't the biggest essential," he says. "What really counts is a knowledge of people. A banker handles only two things: money and people. The more he knows about his customers, the better he is able to judge their needs. Everyone who comes in our door is treated as a personal problem. We know their assests, their peculiarities and how best to serve them.

"The needs of farm folk are not as great as those of city people. Farmers know what they want. Their reasons for making a loan are well-founded. Usually they have carefully thought out just how they are going to repay the loan. They use loans only for real necessities or for farming expansion. People in towns are likely to give you only the brighter side in justifying a loan. A farmer is more apt to view going into debt as a serious step. He gives you the complete facts, most often painting the picture darker than it is."

A rural bank is far more than a place for the exchange of money. If a customer needs a spot to transact a little business quietly, most rural banks offer the use of of their back room. If a merchant wants to use the adding machine, he's welcome. Baker says, "Farmers come in to the bank only now and then. When they do come in, they expect to visit with you a while. When they make a deposit, they also want to know how the tobacco or corn is doing on the other side of town. Frequently a farmer will cash a check for the sale of livestock in hundred-dollar bills and take the money home with him where he can see it and feel it for a week or so. Then he'll make another trip into town to deposit it.

"A number of our customers can't write their names. Most rural banks make out checks and deposit slips for many of their customers. Farmers trust banks. The old old idea that bankers are like old Scrooge, with no friends and no hobbies except counting their money and no joys except in foreclosing mortgages is as much a myth as so-called 'banker's hours.' Many a banker's day really begins after the bank closes."

Banker's Hours

Bob Baker's day begins at 5 a. m. He starts off lending a hand with the chores or perhaps with a few hours of plowing on his farm. At 8:00 he gets things under way in his general store. At 9:00 he opens the bank. During the noon hour he checks

do it with Air-Cooled
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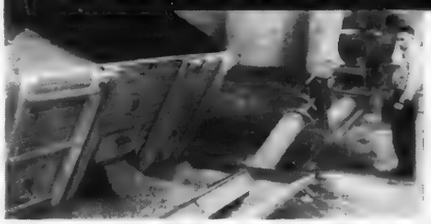

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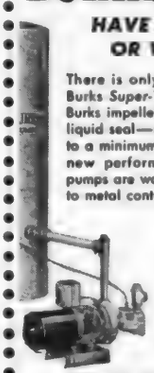

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on his insurance business. At 2:00, when the bank closes, he begins his rounds, "making money," he says, "in seven different ways."

On a typical afternoon, he might discuss floating a cattle loan with Wallace Mullins, who does considerable feeding, then spread a little good will just by passing the time of day with a few farmers in the field, then drop in on some farm wife to see if he can interest her in a new vacuum sweeper or other appliance. If there is time before supper, he may dabble in a little real estate or sell an insurance policy. Nights he attends lodge meetings, helps farmers with their legal papers or gives speeches as required. His wife is used to letting the meal simmer. But he leaves a trail in his wake and if a farmer wants to do business or needs help, Baker is readily found and willing to open the bank at any hour.

Directors of the Crab Orchard Bank—there are five of them—have stubbornly resisted the temptation to relinquish their control in a merger with a larger town bank. Their slogan reads, "There are larger banks, but none safer." They meet about twice a year. When a farmer needs money, he doesn't have to await for a directors' meeting to get it. Decisions are up to Bob Baker, who decides on the spot. Chances are Baker will approve a loan on a farmer's reputation as readily as on any collateral offered. Lincoln County farming is diversified, with tobacco the main crop, plus grain, beef, and some dairying, making for a stable agricultural economy. Savings are relatively high, loans at a minimum. The farmers are not given to carrying financial burdens they cannot bear. As elsewhere, credit needs have mounted with heavy investments in livestock and machinery. But at Crab Orchard business goes on at the same old stand in the same man-to-man fashion that prevailed in the days when a darn good feeder steer could be bought for $20 and harness loans were big business.

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W. S. DARLEY & CO. Irrigation Division Chicago 12, Illinois

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(*Continued from page* 10)

rarely sees a cow on pasture at Biltmore now because most of them are on a system of zero pasture. Albert Clark, the alert and hustling farm manager, thinks the only way to run a farm is to make every square inch of land produce to its maximum capacity and he has found that he can get much more off any given piece of land when he cuts and hauls the forage to the cows rather than letting them walk all over it and pick and choose what they want. Some of his fields are too steep for the choppers and wagons, though, so he utilizes their growth by turning the heifers and dry cows onto them.

Typical of Clark's high production records are his silage yields. After taking corn silage off some of the fields last fall he sowed winter oats, which were harvested as silage this spring. The total yield of corn and oats silage was 60 tons per acre. And this was in less than 12 months.

The efficiency of the family-type unit was proven on the estate when Clark began to search for ways to improve the operation of a large centralized unit in which some 250 cows were milked in one big stanchion barn. "By breaking this down into three herds of not more than 80 cows each, with each herd under the control of a different family, we saved ourselves $1000 a month in labor," he says.

That brings us back to the cooperative use of machinery. The families who handle the cows do little or none of the field work. Their prime responsibility is the feeding, milking and clean-up chores, what might be called the animal husbandry side of the enterprise. The agronomic and engineering tasks are handled by another crew of specialists who handle the planting, cultivation and harvesting of all the crops. When it is time for hay to be put up on unit "A," the field crew moves in and does the work. When there is a silo-filling operation ready at unit "B", the crew goes into operation there.

This leads us into an intriguing hypothesis: Could a plan similar to this be followed by a group of neighboring dairy farmers, each of whom operated an independent unit? Could one or two custom operators, as we might call them for want of a better term, afford to buy and maintain the equipment and hire the labor necessary to service the field operations of the group? Could they so schedule their time as to do the work promptly and satisfactorily? Or would it be feasible for the dairymen to pool their resources, invest in the equipment and hire operators to do the work? Or, how far might they be able to go in pooling some of their land so that the fields could be enlarged, rotations merged and crops harvested as a unit.

One of the most debilitating ills of today's agriculture is the needless duplication of equipment on neighboring farms and the resulting excessive depreciation on expensive machines which are used no more than a few days a year. And on no segment of the industry is it having a more telling effect than on dairying, where the operator is restrained from expanding beyond certain limits because of the need of his stock for personal supervision.

The ideas suggested here might also be a way of keeping our land in the hands of those who use it; of preserving the solid foundations of individual ownership. They are in the realm of pure speculation, but from such speculation came the technique for splitting the atom. Farming needs nothing more than some original thinking. What are your ideas?

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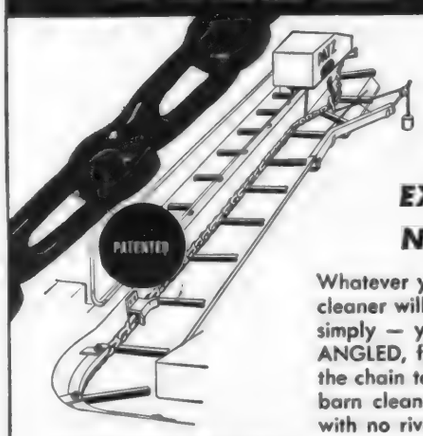

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Because of an exclusive flat-linked HOOK 'N EYE Chain

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MOWS PASTURES
CLEARS LAND

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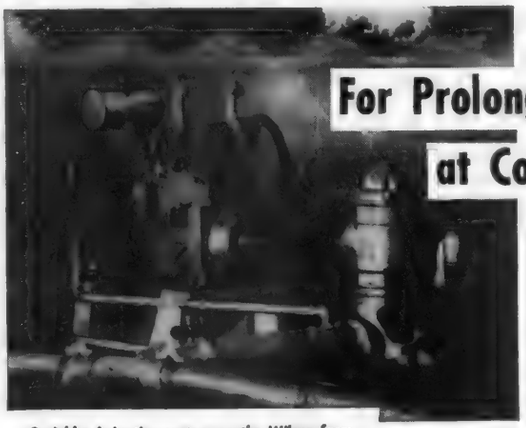

Sprinkler irrigation system on the Wilson farm, Lexington, Nebraska. Continental Red Seal Model M-363 operating on natural gas drives the deep well pump.

For Prolonged Operation at Constant Speed, Choose RED SEAL... It's Built for the Job

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Continental Motors Corporation
MUSKEGON, MICHIGAN

CONTINENTAL MOTORS — Powerful Partner of the Nation — AMERICA'S STANDARD

OH, PIONEER

(*Continued from page* 86)

further. Handcarts and belongings were left for the winter and the Martin Company was loaded into the wagons.

The survivors of the Martin Company were finally hauled into Salt Lake City on November 30. Many of them were unconscious when the wagons rolled into the frontier town and did not see their promised land for days. They had lost an estimated 150 of their original 575. No accurate count was ever made at the time when all thought they would perish.

Before the winter was out, the handcart people were dispersed over the whole territory, living with other families, but preparing with the spring to begin their own farms in this land called Zion.

Why did they make this terrible journey and how did they feel about it afterward? One of them later said, "Whenever I tell the story of the handcart companies of '56, my heart is filled with pride and thanksgiving to think that I have passed through such hardships for the cause which I embraced and loved so much."

On opposite ends of the waiting room of the modern Union Pacific station in Salt Lake City are two great murals. One shows Brigham Young as he entered the Valley of the Salt Lake with his ox trains in 1847, the other is a painting of Leland Standford as he drove the golden spike which connected the transcontinental railroad at Promintory Point on the bank of Great Salt Lake in 1869. Midway in time between these two events, ten handcart companies pulled and pushed their little carts across the rutted plains, through streams and rivers and over the rugged mountains to Zion.

Editor's Note: THE FARM QUARTERLY wishes to express its gratitude and to acknowledge the help given by Kate B. Carter of the Daughters of Utah Pioneers, the Historian of the Church of Jesus Christ of Latter-day Saints, the Utah State Historical Society, Nicholas G. Morgan of the Sons of Utah Pioneers, Marba C. Josephson of the *Improvement Era*, and others.

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There's no need to buy two, three or more separate power garden tools. ROTO-HOE Integral Design makes one efficient power unit operate a wide variety of modestly-priced, high-quality attachments—all interchangeable in a few seconds. The complete ROTO-HOE costs only $134, and the new 22" SELF-PROPELLED TWIN ROTO-CUTTER can be added for only $49.50. Saw, sprayer, snow blower, edger and leaf mulcher attachments are priced similarly low.

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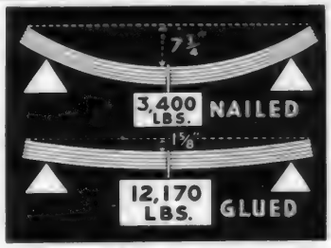

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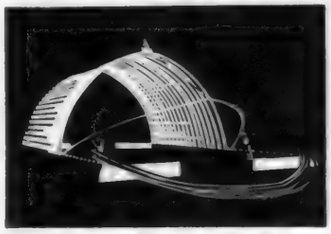

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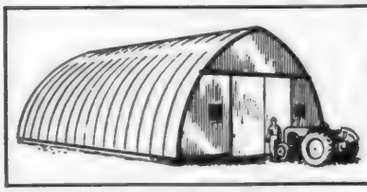

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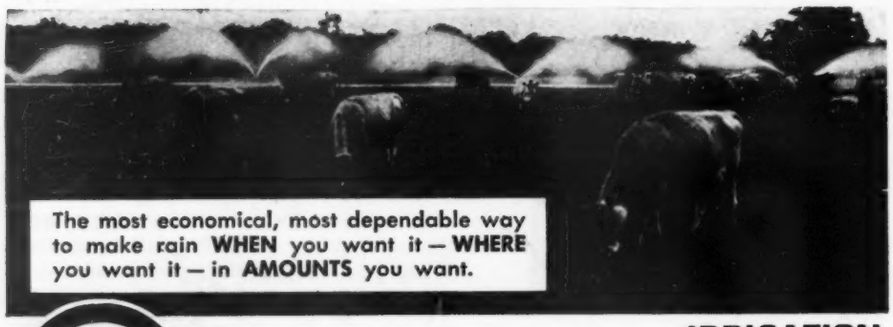

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LETTERS

(*Continued from page* 16)

Sometimes I wish that the people who could write so interestingly about agricultural subjects could also be technically a little more accurate.

R. C. McWilliams
County Agent
St. Albans, Vermont

Sirs:

I expected great things of your FARM QUARTERLY. It looks good, it has timely articles. When the Summer edition arrived I noticed an article on page 66 entitled "Can Farmers Strike" by Grant Cannon. I have known Mr. Cannon, through other articles, but this one has me floored. This strike was a shameful thing, and in this article he has given altogether too much comfort to the perpetrators of the strike. Why don't our writers support honor and decency? Are you afraid you can't sell your paper, if it doesn't have a sensational nature. *Michigan Milk* has capably served the dairy farmers of this area, and got very little credit for the many services they have performed in marketing the dairy farmers' products.

I would suggest that you go to the officers of *Michigan Milk*, get their story, and help build something constructive. Any more articles like that one and I will lose all faith in anything you publish.

E. T. Leipprandt
Pigeon, Michigan

Sirs:

Farmers around Detroit must be very different from the kind we have around Louisville. I know we couldn't get together about anything here. There would always be one or two who would hang back or back out to spoil any effort to act together. The old ones are worse than the young fellows. Maybe we must wait until a younger generation gets the farms.

J. C. Warren
R. R. 1
Louisville, Kentucky

Sirs:

Your article "Can Farmers Strike?" is an excellent job of pulling a lot of facts together. It was impossible in reading the press stories to tell what was happening during that Detroit strike, and it is good that so much information can be collected in one place. I am going to write several Congressmen and Senators and suggest that they put it in The Congressional Record.

Frank Wallick
Wisconsin State Industrial
Union Council
Milwaukee, Wisconsin

Sirs:

Your reporting of the milk strike in the Summer FARM QUARTERLY goes beyond facts and into reasons, reactions and conclusions. I think it the best story of the fracas this far. You are to be congratulated.

Rolland Brengle, *President*
Fair Share Bargaining Association
for Michigan Dairy Farmers
South Lyon, Michigan

Lady Bug

Sirs:

We would appreciate knowing how many times the Lady Bug on page 78 of the Spring FARM QUARTERLY is magnified. We enjoyed the article very much.

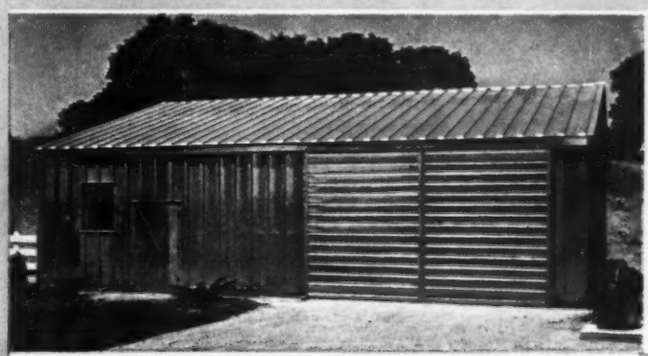
Jan Hildebrand
Brush, Colorado

Have no fear—that monster was 75 times natural size.

MARTIN "FARM DESIGNED" BUILDINGS
BOOST EFFICIENCY – REDUCE WASTE, LABOR

High Round Crib permits earlier harvest, less loss

You can harvest earlier, in nice weather, and lose far, far less corn from shelling, dropped ears and downed stalks. Weather is never a problem. You pick with kernel moisture as high as 35%, when leaves and stalks are still pliable — and your picker works better, too! This high-moisture corn is dried by unheated air forced through the High Round Crib by a high-pressure fan. In addition, you get dry, vermin-proof storage that will maintain the quality of the crop you grow. Dollar for dollar, a High Round Crib gives you more permanent, efficient, convenient storage than any other system. You'll save labor, too, because you fill and empty a High Round with a standard farm elevator—eliminating hard, back-breaking shoveling.



Rigid Frame Building has efficient, clear-span interior

Every cubic foot of space is usable inside the Martin Rigid Frame Building with its straight sidewalls and open, trussless interior. Walls, corners and eaves are tight to keep out rain and snow — and doors and windows fit snug. Ventilation is no problem with gable louvres or roof ventilators. Here's a building that's usable for general storage of seed, feed and fertilizer, as livestock shelter, machinery storage, dairy barn, farm shop — or a general purpose building that you will use every day of the year! And you get the permanence that only steel can assure in a building that will enhance the appearance of your farm. An investment in an efficient, scientifically-designed Martin Rigid Frame Building is an investment in the future of your farm.

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DRIES ALL GRAINS, EAR CORN FOR LESS

This "super batch drier" bin can be put to work making money for you for 50% less than ordinary batch drying and storage systems . . . yet this one unit is all you need. It's the perfect companion to the picker-sheller and combine — a safe, proven modern system.

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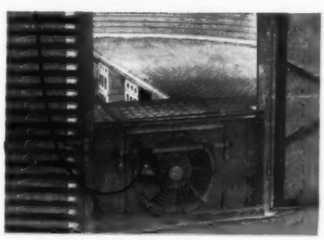

Pressure-type fan forces volumes of air through grain to remove moisture. Center perforated plates are removed in this picture to show air plenum.

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- ☐ Rigid Frame Building
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it takes champion MM husking to make corn pay like this

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MM UNI-PICKER-SHELLER—Pick and shell corn with up to 30% moisture content with this advanced Uni-Farmor unit. One quick trip winds up your corn harvest . . . puts you weeks ahead.

MM PULL-BEHIND HUSKORS—For years the Corn Belt favorite—now better than ever with a host of new advantages. MM pull-behind Huskors are available in 1-row and 2-row models.

MM MOUNTED HUSKORS—Champion MM performance in a compact 2-row Huskor. Available for MM Models ZAN, ZAU, ZBN, ZBU, UBN, UBU, UTN, UTU and the new 445 Universal.

MM QUALITY SHELLERS—*the leading sellers by far!* Give your snapped or husked corn preferred treatment with MM Shellers. Two models, capacities from 175 to 1200 bushels per hour, both belt or PTO powered.